Exhibit 58

DECLARATION OF BRIANNA BLASER

I, Brianna Blaser, declare under the penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct:

1. I am a program operations specialist of the University of Washington (UW). I am over the age of 18 and have personal knowledge of all the facts stated herein, including knowledge based on my experience and information provided to me. If called as a witness, I could and would testify competently to the matters set forth below.

2. I submit this Declaration in support of the Plaintiff States' Motion for Preliminary Injunction.

Professional Background

3. My career has been focused on equity and inclusion in STEM. I graduated from UW in 2008 with a PhD in Women Studies; my dissertation focused on the inclusion of women in STEM fields. Since 2011, I have worked for the DO-IT Center (Disability, Opportunities, Internetworking, and Technology) at UW, managing and now leading projects that increase the participation of people with disabilities in STEM fields. When I joined DO-IT, my title was project coordinator, eventually I became a project manager, and received my first grant as a Principal Investigator (PI) in 2021.

4. I conduct research focused on the inclusion of people with disabilities in computing education and careers at UW. Since 2011, I have worked as a project coordinator, project manager, and now as PI and Co-PI on numerous NSF-funded projects, during both Democratic and prior Republican presidential administrations. My NSF-funded research has included leading a nationwide alliance on disability inclusion in computing, developing strategies for inclusion of women with disabilities in faculty STEM careers, accessibility of computer science in K12

education, and integrating accessibility into a collective impact model-alliance. Prior to April 18, 2025, I was serving as PI, co-PI, or senior personnel for six active projects funded by NSF grant.

Projects Affected by NSF Priority Changes

5. On May 2, 2025, NSF provided notice that it had terminated one of my active grants, NSF Award ID 2017017. The project title associated with award 2017017 is ADVANCE Partnership: AccessADVANCE.

6. The then-current funding for award 2017017 was funded by NSF by an award issued on August 14, 2020, in the amount of $1,099,206.00. That document is attached as Exhibit 1. At the time Sheryl Burgstahler was PI. Upon her departure from DO-IT, I became PI in February 2024.

7. The fundamental purpose of this project is to promote increased participation in science/technology/engineering/mathematical fields by women with disabilities.

8. The project advances that purpose by facilitating systemic changes within postsecondary STEM departments, NSF ADVANCE and NSF INCLUDES projects, and other organizations such that faculty with disabilities feel welcome, are fully included, and can achieve success. This was facilitated by an online community of practice, webinars, book clubs, and workshops as well as written resources and articles that examined the experiences of disabled women faculty in STEM, barriers to inclusion, and potential solutions.

Funding History for Terminated Grant

9. Funding for ADVANCE Partnership: AccessADVANCE was initially requested by an application on January 10, 2020, to NSF's ADVANCE Program. The application was processed by NSF and selected for funding. Our application is attached as Exhibit 2.

10. In my experience, and as stated in NSF's *Proposal & Award Policies and Procedures Guide*, all proposed projects submitted to NSF are evaluated for both intellectual merit and broader societal impacts and must score highly in both areas to be considered for funding.

11. The original term of funding under award 2017017 was for the period between January 1, 2021, and December 31, 2025.

12. As of May 2, 2025, $243, 055.47 of current funding had not been disbursed by NSF.

Termination Notice

13. In my experience, termination of an active project's funding is rare, and I have never had a project's funding terminated. To my knowledge, prior to 2025, termination has only occurred in cases of scientific or budgetary misconduct, typically with prior notice and opportunities to respond and correct any underlying issues.

14. Nevertheless, on May 2, 2025, NSF sent notice that award 2017017 was terminated. That notice is attached as Exhibit 3. I am aware that NSF also sent many other notices terminating projects around the nation on the same date. This is unprecedented in my experience with NSF.

15. The notice terminating award 2017017 came without any previous process or communication about the project from NSF. The notice contains little explanation for the termination, and no explanation with respect to the intellectual merit or broader impact of the underlying project. The notice recites that "termination of certain awards is necessary because they are not in alignment with current NSF priorities" and continues:

> NSF is issuing this termination to protect the interests of the government pursuant to NSF Grant General Conditions (GC-1) term and condition entitled 'Termination and Enforcement,' on the basis that they no longer effectuate the program goals or agency priorities. This is the final agency decision and not subject to appeal.

Other termination notices issued by NSF in April and May of this year that I have seen are identical, apart from grant numbers.

16. The termination notice stated, "NSF is issuing this termination…on the basis that they no longer effectuate the program goals or agency priorities." My understanding is that one of NSF's specific purposes is to promote participation in STEM fields by women, minorities and people with disabilities. More broadly, I understand that NSF's purpose is to support scientific and engineering research and education. As described in Paragraph 8 above, my project advances those goals. NSF recognized as much when, after careful consideration in its ordinary process, it approved funding for the project.

Harms from NSF Funding Terminations

17. The termination of award 2017017 by NSF will terminate many aspects of the project. The project website will remain online, and the community of practice will remain available. No events will be hosted, we will not consult with other organizations, and we will not develop any new resources.

18. As a result, we will not be able to continue to grow our community, share the resources that we have generated, and build capacity amongst stakeholders to increase equity for faculty with disabilities. In particular, we can no longer serve as a source of support for disabled faculty.

19. In addition, less funding is available for DO-IT staff. We had been poised to hire earlier this year and had conducted final interviews but opted not to hire because of the uncertainty of continued federal funding. In addition, there is less funding available for our staff and PIs, many of whom are disabled.

20. There is no way to recover lost time or restore research continuity once disrupted, and staff who depart will take their training and expertise with them, requiring new investment in training.

Conclusion

21. The mass termination of previously approved NSF grants based on purported new priorities will undermine the NSF's mission to support science, engineering and mathematical education and research. Targeting projects like mine that specifically promote participation in STEM by underrepresented groups including women, minorities, and disabled people will close pathways to bring underrepresented groups into the STEM workforce. Grant terminations make it harder to secure talent needed to continue effective research efforts. These harms are ongoing and, in many instances, irreparable.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge.

Executed this 15th day of May 2025, in Seattle, Washington.

Brianna Blaser
Program Operations Specialist
University of Washington

Exhibit 1

NATIONAL SCIENCE FOUNDATION

Award Notice

Award Number (FAIN): 2017017
Managing Division Abbreviation: HRD **Amendment Number:** 000

AWARDEE INFORMATION

Award Recipient: University of Washington
Awardee Address: 4333 Brooklyn Ave NE Seattle, WA 981950001
Official Awardee Email Address:gcsfund@u.washington.edu
Unique Entity Identifier (DUNS ID): 605799469

AMENDMENT INFORMATION

Amendment Type: New Project
Amendment Date: 08/14/2020
Amendment Number: 000
Proposal Number: 2017017
Amendment Description:

The National Science Foundation hereby awards a Standard Grant for support of the project described in the proposal referenced above .

Funds provided for participant support may not be diverted by the awardee to other categories of expense without the prior written approval of the cognizant NSF Program Officer. Since participant support cost is not a normal account classification, the awardee organization must be able to separately identify participant support costs. It is highly recommended that separate accounts, sub-accounts, sub-task, or sub-ledgers be established to accumulate these costs. The awardee should have written policies and procedures to segregate participant support costs.

AWARD INFORMATION

Award Number (FAIN): 2017017
Award Instrument: Standard Grant
Award Date: 08/14/2020
Award Period of Performance: Start Date: 01/01/2021 End Date: 12/31/2025
Project Title: ADVANCE Partnership: AccessADVANCE
Managing Division Abbreviation: HRD
Research and Development Award: Yes
Funding Opportunity: NSF 19-552 ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions
CFDA Number and Name: 47.076 Education and Human Resources

FUNDING INFORMATION

Amount Obligated by this Amendment: $1,099,206
Total Intended Award Amount: $1,099,206
Total Approved Cost Share or Matching Amount: $0
Total Amount Obligated to Date: $1,099,206
Expenditure Limitation: Not Applicable

PROJECT PERSONNEL

Principal Investigator: Sheryl Burgstahler	**Email:** sherylb@u.washington.edu	**Institution:** University of Washington
Co-Principal Investigator: Cecilia R Aragon	**Email:** aragon@uw.edu	**Institution:** University of Washington

COLLABORATIVE INFORMATION

Proposal ID	Lead	PI Name	Institution
2017017	Y	Sheryl Burgstahler	University of Washington
2017054	N	Canan Bilen-Green	North Dakota State University

NSF CONTACT INFORMATION

Managing Grants Official (Primary Contact) **Name:** Jannele L. Gosey **Email:** jgosey@nsf.gov	**Awarding Official** **Name:** Jannele L. Gosey **Email:** jgosey@nsf.gov	**Managing Program Officer** **Name:** Jessie A. Dearo **Email:** jdearo@nsf.gov

GENERAL TERMS AND CONDITIONS

This is awarded pursuant to the authority of the National Science Foundation Act of 1950, as amended (42 U.S.C. 1861-75) and is subject to Research Terms and Conditions (RTCs) dated 03/14/2017, and NSF Agency Specific Requirements, dated 02/25/2019, available at https://www.nsf.gov/awards/managing/rtc.jsp.

This institution is a signatory to the Federal Demonstration Partnership (FDP) Phase VI Agreement which requires active institutional participation in new or ongoing FDP demonstrations and pilots.

This award is made in accordance with the provisions of NSF Solicitation: NSF 19-552 ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions.

BUDGET

A. Senior Personnel	
Senior Personnel Count	10.00
Senior Personnel Calendar Months	5.00
Senior Personnel Academic Months	0.00
Senior Personnel Summer Months	5.00
Senior Personnel Amount	$192,507
B. Other Personnel	
Post Doctoral Scholars	
Post Doctoral Count	0.00
Post Doctoral Calendar Months	0.00
Post Doctoral Academic Months	0.00
Post Doctoral Summer Months	0.00
Post Doctoral Amount	$0
Other Professionals	
Other Professionals Count	20.00
Other Professionals Calendar Months	30.00
Other Professionals Academic Months	0.00
Other Professionals Summer Months	0.00
Other Professionals Amount	$190,994
Graduate Students	
Graduate Students Count	0.00
Graduate Students Amount	$0
Undergraduate Students	
Undergraduate Students Count	20.00
Undergraduate Students Amount	$12,375
Secretarial - Clerical	

Secretarial - Clerical Count	0.00
Secretarial - Clerical Amount	$0
Other	
Other Count	0.00
Other Amount	$0
Total Salaries and Wages (A+B)	$395,876
C. Fringe Benefits	$117,553
Total Salaries, Wages, Fringe Benefits (A + B + C)	$513,429
D. Equipment	$0
E. Travel	
Domestic	$37,500
International	$0
F. Participant Support Costs	
Participant Support Costs Stipends	$0
Participant Support Costs Travel	$45,000
Participant Support Costs Subsistence	$43,910
Participant Support Costs Other	$50,400
Total Number of Participants	1034.00
Total Participant Costs (F)	$139,310
G. Other Direct Costs	
Materials Supplies	$7,500
Publication Costs	$10,000
Consultant Services	$40,000
Computer Services	$0
Subawards	$0
Other	$8,868
Total Other Direct Costs (G)	$66,368
H. Total Direct Costs (A Through G)	**$756,607**
I. Indirect Costs*	**$342,599**
J. Total Direct and Indirect Costs (H + I)	$1,099,206
K. Fees	$0
L. Total Amount of Request (J) OR (J + K)	**$1,099,206**
M. Cost Sharing Proposed Level	$0

*Indirect Cost Rates

Item Name	Indirect Cost Rate
Modified Total Direct Costs	55.5000%

These rates are at the time of award and are based upon the budget submitted to the NSF. It does not include any out-year adjustments. The NSF will not modify awards simply to correct indirect cost rates cited in the award notice. See the Proposal & Award Policies & Procedures Guide (PAPPG) Chapter X.A.3.a. for guidance on re-budgeting authority.

Exhibit 2

List of Suggested Reviewers or Reviewers Not To Include (optional)

SUGGESTED REVIEWERS:
Not Listed

REVIEWERS NOT TO INCLUDE:
Not Listed

List of Suggested Reviewers or Reviewers Not To Include (optional)

SUGGESTED REVIEWERS:
Not Listed

REVIEWERS NOT TO INCLUDE:
Not Listed

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

Please note that some information requested in prior versions of the PAPPG is no longer requested. THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED. Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

COA template Table 1:
List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

COA template Table 2:
List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

COA template Table 3:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **The individual's Ph.D. advisors; and**
- **All of the individual's Ph.D. thesis advisees.**

COA template Table 4:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and**
- **Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.**

COA template Table 5:
List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.
- **Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and**
- **Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

1 Note that graduate advisors are no longer required to be reported.
2 Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional)
Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and
To insert *n* blank rows, select *n* row numbers to move down, right click, and choose Insert from the menu.
You may fill-down (crtl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting.
For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.
"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

Table 1: List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 r	Last Active Date
	Burgstahler, Sheryl	University of Washington	1984-present

Table 2: List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

to disambiguate common names

2	Name:	Type of Relationship	Optional (email, Department)	Last Active
R:	Ostendorf, Mari	Colleague, University of Washington		Current
R:	Riskin, Eve	Colleague, University of Washington		Current
R:	Yen, Joyce	Colleague, University of Washington		Current

Table 3: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and
T: All of the individual's Ph.D. thesis advisees.

to disambiguate common names

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
G:	Kerr, Stephen	Retired, University of Washington	

G:	Olswang, Steven	City University, Seattle	
G:	Yalch, Richard	University of Washington	

Table 4: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

A: Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and

C: Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

to disambiguate common names

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
C:	Atchison, Christopher L	University of Cincinnati		Current
C:	Bates, Mariette	City University of New York		Current
C:	Bellman, Scott	University of Washington		Current
C:	Bigelow, Kimberly	University of Dayton		Current
C:	Blaser, Briaana	University of Washington		Current
C:	Cakmak, Maya	University of Washington		Current
C:	Crawford, Lyla	University of Washington		Current
C:	Hollingsworth Koomen, Mic	Gustavus Adolphus College		Current
C:	Kahn, Sami	Ohio University		Current
C:	Ko, Amy	University of Washington		Current
C:	Ladner, Richard	University of Washington		Current
C:	Martin, Julie	Clemson University		Current
C:	Myers, Karen	St Louis University		Current
C:	Slaton, Amy	Purdue University		Current
C:	Slelvakumar, Meena	University of Washington		Current
C:	Steele, Katherine	University of Washington		Current
C:	Stefik, Andreas	University of Nevada, Las Vegas		Current
C:	Stodden, Bob	Retired, University of Hawaii at Manoa		Current
C:	Thompson, Terrill	University of Washington		Current
C:	Wild, Tiffany A	The Ohio State University		Current
C:	Wobbrock, Jacob	University of Washington		Current

Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.

B: Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and

E: Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

to disambiguate common names

5	Name:	Organizational Affiliation	Journal/Collection	Last Active
B:				
E:				

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

If there are more than 10 individuals designated as senior project personnel on the proposal, or if there are print preview issues, each completed template must be saved as a .txt file [select the Text (Tab Delimited) option] rather than as an .xlsx or .xls file. This format will still enable preservation of searchable text and avoid delays in processing and review of the proposal.
Please note that some information requested in prior versions of the PAPPG is no longer requested. THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED. Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

COA template Table 1:
List the individual's last name, first name, middle initial, and organizational affiliation (including considered affiliation) in the last 12 months.

COA template Table 2:
List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

COA template Table 3:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **The individual's Ph.D. advisors; and**
- **All of the individual's Ph.D. thesis advisees.**

COA template Table 4:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and**
- **Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.**

COA template Table 5:
List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.
- **Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and**
- **Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

1 Note that graduate advisors are no longer required to be reported.
2 Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional)
Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and
To insert *n* blank rows, select *n* row numbers to move down, right click, and choose Insert from the menu.
You may fill-down (crtl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting.
For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.
"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

Table 1: List the individual's last name, first name, middle initial, and organizational affiliation (including considered affiliation) in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 r	Last Active Date
	Aragon, Cecilia R.	University of Washington, Seattle	Current

Table 2: List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

to disambiguate common names

2	Name:	Organizational Affiliation	Optional (email, Department)	Last Active

Table 3: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and
T: All of the individual's Ph.D. thesis advisees.

to disambiguate common names

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
T:	Brooks, Michael	University of Washington, Seattle	

T:	Chen, Nan-Chen	University of Washington, Seattle	
T:	Drouhard, Meg	University of Washington, Seattle	
T:	Figueroa, Andrea	University of Washington, Seattle	
T:	Frens, Jenna	University of Washington, Seattle	
G:	Hearst, Marti	University of California, Berkeley	
T:	Hong, Sungsoo	University of Washington, Seattle	
T:	Kuksenok, Katie	University of Washington, Seattle	
G:	Lawler, Eugene	University of California, Berkeley	
T:	Mitchell, Sean	University of Washington, Seattle	
T:	Perry, Daniel	University of Washington, Seattle	
G:	Sastry, Shankar	University of California, Berkeley	
T:	Scott, Taylor	University of Washington, Seattle	
G:	Seidel, Raimund	University of California, Berkeley	
T:	Tanweer, Anissa	University of Washington, Seattle	

Table 4: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

A: Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and

C: Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

to disambiguate common names

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
C:	Agarwal, Deb	LBNL		
A:	Agarwal, Deepa	University of Washington, Seattle		
C:	Aldering, G.	LBNL		
C:	Antilogus, P.	IN2P3 France		
C:	Aragon, D.	Juniper Networks		
C:	Baltay, C.	Yale University		
C:	Bethel, E.	LBNL		
C:	Blandford, A.	Univ. College London		
C:	Bongard, S.	IN2P3 France		
C:	Buton, C.	Univ. Lyon, France		
C:	Childress, M.	UCB		
C:	Chotard, N.	Univ. Lyon, France		
C:	Copin, Y.	Univ. Lyon, France		
C:	Cormier-Michel, E.	LBNL		
A:	Davis, Katie	University of Washington, Seattle		
C:	Ding, C.	U Texas Arlington		
A:	Evans, Sarah	Texas Woman's University		
A:	Figueroa, Andrea	University of Washington, Seattle		
C:	Fiore-Gartland, Brittany	University of Washington, Seattle		
A:	Frens, J.	University of Washington, Seattle		
C:	Gangler, E.	Univ. Lyon, France		
C:	Geddes, C.	LBNL		
A:	Guha, Shion	Marquette University		
C:	Hagan, H.	U Kaiserlautern, Germany		
C:	Hamann, B.	UC Davis		
C:	Haselkorn, Mark	University of Washington, Seattle		
C:	Hearst, M.	UCB		
A:	Hiniker, Alexis	University of Washington, Seattle		
C:	Jokela, T.	U Oulu, Finland		
A:	Kogan, M.	U Utah		
C:	Lee, Brian	LBNL		

C:	Lee, C.	UW		
A:	Muller, M.	IBM		
A:	Neff, G.	Oxford		
C:	Nof, S.	Purdue		
C:	Nugent, P.	LBNL		
C:	Pain, R.	IN2P3 France		
C:	Pecontal, E.	Univ. Lyon, France		
C:	Pereira, R.	Univ. Lyon, France		
C:	Perlmutter, S.	LBNL		
C:	Poon, S.	LBNL		
C:	Prabhat	LBNL		
C:	Quimby, R.	Caltech		
C:	Rabinowitz, D.	Yale University		
C:	Rigaudier, G.	Univ. Lyon, France		
C:	Romano, R.	Google		
C:	Ruebel, O.	LBNL		
C:	Runge, K.	LBNL		
C:	Scalzo, R.	Yale University		
A:	Sharma, Niharika	University of Washington, Seattle		
C:	Silva, C.	U of Utah		
C:	Smadja, G.	Univ. Lyon, France		
A:	Starbird, Kate	University of Washington, Seattle		
C:	Swift, H.	LBNL		
C:	Tao, C.	CPPM France		
C:	Thomas, R.	LBNL		
C:	Ushizima, D.	LBNL		
C:	Weber, G.	LBNL		
A:	West, Jevin	University of Washington, Seattle		
C:	Wu, C.	IN2P3 France		
C:	Zachry, M.	University of Washington, Seattle		

Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief

B: Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and

E: Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

to disambiguate common names

5	Name:	Organizational Affiliation	Journal/Collection	Last Active
B:				
E:				

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

Please note that some information requested in prior versions of the PAPPG is no longer requested. THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED. Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

COA template Table 1:
List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

COA template Table 2:
List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

COA template Table 3:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **The individual's Ph.D. advisors; and**
- **All of the individual's Ph.D. thesis advisees.**

COA template Table 4:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and**
- **Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.**

COA template Table 5:
List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.
- **Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and**
- **Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

1 Note that graduate advisors are no longer required to be reported.
2 Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional)
Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and
To insert *n* blank rows, select *n* row numbers to move down, right click, and choose Insert from the menu.
You may fill-down (crtl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting.
For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.
"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

Table 1: List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 r	Last Active Date
	Bilen-Green, Canan	North Dakota State University	1998-present

Table 2: List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

to disambiguate common names

2	Name:	Type of Relationship	Optional (email, Department)	Last Active

Table 3: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and
T: All of the individual's Ph.D. thesis advisees.

to disambiguate common names

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
G:	Huzurbazar, Snehalata	West Virginia University	

G:	Anderson-Sprecher, Richard	University of Wyoming	
T:	Li, Xiaoxia	North Dakota State University	
T:	Khan, Anakaorn	North Dakota State University	

Table 4: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

A: Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and

C: Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.

to disambiguate common names

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
A:	Anicha, Cali	North Dakota State University		Current
A:	Burnett, Ann	North Dakota State University		Current
A:	Farahmand, Kambiz	North Dakota State University		5/15/18
A:	Langley, Linda	North Dakota State University		Current
A:	Ray, Chris	North Dakota State University		02/14/2017
A:	Wichai Chattinnawat	Chiang Mai University, Thailand		5/15/18
C:	Green, Roger	North Dakota State University		Current
C:	McGeorge, Christi	North Dakota State University		Current
C:	Morrow-Jones, H	The Ohio State University		Current
C:	Dell, E	Rochester Institute of Technology		Current
C:	Cervato, Cinzia	Iowa State University		Current
C:	Minerick, Adrienne	Michigan Technological University		Current
C:	Koretsky, Carla	Western Michigan University		Current

Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.

B: Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and

E: Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.

to disambiguate common names

5	Name:	Organizational Affiliation	Journal/Collection	Last Active

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./DUE DATE	☐ Special Exception to Deadline Date Policy	FOR NSF USE ONLY
NSF 19-552 01/15/20		NSF PROPOSAL NUMBER
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)		2017017
HRD - ADVANCE		

DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
01/13/2020	1	11060000 HRD	016Y	605799469	01/13/2020 5:23pm

EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)	SHOW PREVIOUS AWARD NO. IF THIS IS ☐ A RENEWAL ☐ AN ACCOMPLISHMENT-BASED RENEWAL	IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES ☐ NO ☒ IF YES, LIST ACRONYM(S)
916001537		

NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE	ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE
University of Washington	University of Washington 4333 Brooklyn Ave NE Seattle,WA.981950001
AWARDEE ORGANIZATION CODE (IF KNOWN) 0037986000	
NAME OF PRIMARY PLACE OF PERF	ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE
University of Washington	University of Washington Seattle ,WA ,981954842 ,US.

IS AWARDEE ORGANIZATION (Check All That Apply) ☐ SMALL BUSINESS ☐ MINORITY BUSINESS ☐ FOR-PROFIT ORGANIZATION ☐ WOMAN-OWNED BUSINESS ☐ IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE

TITLE OF PROPOSED PROJECT **Collaborative Research: AccessADVANCE**

REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE
$ 1,099,206	60 months	09/01/20	

THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW

☐ BEGINNING INVESTIGATOR
☐ DISCLOSURE OF LOBBYING ACTIVITIES
☐ PROPRIETARY & PRIVILEGED INFORMATION
☐ HISTORIC PLACES
☐ VERTEBRATE ANIMALS IACUC App. Date _____
PHS Animal Welfare Assurance Number _____
☒ TYPE OF PROPOSAL Research

☒ HUMAN SUBJECTS Human Subjects Assurance Number _____
Exemption Subsection _____ or IRB App. Date Pending
☐ FUNDING OF INT'L BRANCH CAMPUS OF U.S IHE ☐ FUNDING OF FOREIGN ORG
☐ INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED
☒ COLLABORATIVE STATUS
A collaborative proposal from multiple organizations (PAPPG II.D.3.b)

PI/PD DEPARTMENT	PI/PD POSTAL ADDRESS
College of Engineering	Box 354842 University of Washington Seattle,WA 98195 United States
PI/PD FAX NUMBER 206-685-3648	

NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address
PI/PD NAME Sheryl Burgstahler	PhD	1992	206-543-0622	sherylb@u.washington.edu
CO-PI/PD Cecilia R Aragon	PhD	2004	206-543-2567	aragon@uw.edu
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				

CERTIFICATION PAGE

Certification for Authorized Organizational Representative (or Equivalent) or Individual Applicant

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), drug-free workplace, debarment and suspension, lobbying activities (see below), nondiscrimination, flood hazard insurance (when applicable), responsible conduct of research, organizational support, Federal tax obligations, unpaid Federal tax liability, and criminal convictions as set forth in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

Certification Regarding Conflict of Interest

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of PAPPG Chapter IX.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

Drug Free Work Place Certification

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent), is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Proposal & Award Policies & Procedures Guide.

Debarment and Suspension Certification

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency? Yes ☐ No ☒

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Proposal & Award Policies & Procedures Guide.

Certification Regarding Lobbying

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding $100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding $150,000.

Certification for Contracts, Grants, Loans and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:
(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, ''Disclosure of Lobbying Activities,'' in accordance with its instructions.
(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Certification Regarding Nondiscrimination

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Proposal & Award Policies & Procedures Guide.

Certification Regarding Flood Hazard Insurance

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:
(1) community in which that area is located participates in the national flood insurance program; and
(2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:
(1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
(2) for other NSF grants when more than $25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

Certification Regarding Responsible Conduct of Research (RCR)
(This certification is not applicable to proposals for conferences, symposia, and workshops.)

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Chapter IX.B. , the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

2017017

CERTIFICATION PAGE - CONTINUED

Certification Regarding Organizational Support

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that there is organizational support for the proposal as required by Section 526 of the America COMPETES Reauthorization Act of 2010. This support extends to the portion of the proposal developed to satisfy the Broader Impacts Review Criterion as well as the Intellectual Merit Review Criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

Certification Regarding Federal Tax Obligations

When the proposal exceeds $5,000,000, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal tax obligations. By electronically signing the Certification pages, the Authorized Organizational Representative is certifying that, to the best of their knowledge and belief, the proposing organization:
(1) has filed all Federal tax returns required during the three years preceding this certification;
(2) has not been convicted of a criminal offense under the Internal Revenue Code of 1986; and
(3) has not, more than 90 days prior to this certification, been notified of any unpaid Federal tax assessment for which the liability remains unsatisfied, unless the assessment is the subject of an installment agreement or offer in compromise that has been approved by the Internal Revenue Service and is not in default, or the assessment is the subject of a non-frivolous administrative or judicial proceeding.

Certification Regarding Unpaid Federal Tax Liability

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal Tax Liability:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has no unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

Certification Regarding Criminal Convictions

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Criminal Convictions:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has not been convicted of a felony criminal violation under any Federal law within the 24 months preceding the date on which the certification is signed.

Certification Dual Use Research of Concern

By electronically signing the certification pages, the Authorized Organizational Representative is certifying that the organization will be or is in compliance with all aspects of the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME **Lars G Laing-Peterson**	**Electronic Signature**	**Jan 13 2020 5:21PM**

TELEPHONE NUMBER	EMAIL ADDRESS	FAX NUMBER
206-616-6243	**llaing@uw.edu**	

2017017

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./DUE DATE	☐ Special Exception to Deadline Date Policy	FOR NSF USE ONLY
NSF 19-552 01/15/20		NSF PROPOSAL NUMBER
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)		
HRD - ADVANCE		

DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
				803882299	

EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)	SHOW PREVIOUS AWARD NO. IF THIS IS ☐ A RENEWAL ☐ AN ACCOMPLISHMENT-BASED RENEWAL	IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES ☐ NO ☒ IF YES, LIST ACRONYM(S)
456002439		

NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE	ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE
North Dakota State University Fargo	North Dakota State University Fargo Dept 4000 - PO Box 6050 Fargo,ND.581086050
AWARDEE ORGANIZATION CODE (IF KNOWN) 0029975000	
NAME OF PRIMARY PLACE OF PERF	ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE
North Dakota State University Fargo	North Dakota State University Fargo Fargo ,ND ,581086050 ,US.

IS AWARDEE ORGANIZATION (Check All That Apply) ☐ SMALL BUSINESS ☐ MINORITY BUSINESS ☐ FOR-PROFIT ORGANIZATION ☐ WOMAN-OWNED BUSINESS ☐ IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE

TITLE OF PROPOSED PROJECT AccessADVANCE

REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE
$ 150,001	60 months	09/01/20	

THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW

☐ BEGINNING INVESTIGATOR
☐ DISCLOSURE OF LOBBYING ACTIVITIES
☐ PROPRIETARY & PRIVILEGED INFORMATION
☐ HISTORIC PLACES
☐ VERTEBRATE ANIMALS IACUC App. Date _____
PHS Animal Welfare Assurance Number _____
☒ TYPE OF PROPOSAL Research

☐ HUMAN SUBJECTS Human Subjects Assurance Number _____
Exemption Subsection _____ or IRB App. Date _____
☐ FUNDING OF INT'L BRANCH CAMPUS OF U.S IHE ☐ FUNDING OF FOREIGN ORG
☐ INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED
_____
☒ COLLABORATIVE STATUS
A collaborative proposal from multiple organizations (PAPPG II.D.3.b)

PI/PD DEPARTMENT	PI/PD POSTAL ADDRESS
Industrial & Manufacturing Engineering	202 Civil & Industrial Engr. Bldg Fargo,ND 581055405 United States
PI/PD FAX NUMBER 701-231-7195	

NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address
PI/PD NAME Canan Bilen-Green	PhD	1998	701-231-7040	canan.bilen.green@ndsu.edu
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				

CERTIFICATION PAGE

Certification for Authorized Organizational Representative (or Equivalent) or Individual Applicant

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), drug-free workplace, debarment and suspension, lobbying activities (see below), nondiscrimination, flood hazard insurance (when applicable), responsible conduct of research, organizational support, Federal tax obligations, unpaid Federal tax liability, and criminal convictions as set forth in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

Certification Regarding Conflict of Interest

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of PAPPG Chapter IX.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

Drug Free Work Place Certification

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent), is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Proposal & Award Policies & Procedures Guide.

Debarment and Suspension Certification

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency? Yes ☐ No ☒

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Proposal & Award Policies & Procedures Guide.

Certification Regarding Lobbying

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding $100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding $150,000.

Certification for Contracts, Grants, Loans and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:
(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, ''Disclosure of Lobbying Activities,'' in accordance with its instructions.
(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

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(1) community in which that area is located participates in the national flood insurance program; and
(2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:
(1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
(2) for other NSF grants when more than $25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

Certification Regarding Responsible Conduct of Research (RCR)
(This certification is not applicable to proposals for conferences, symposia, and workshops.)

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Chapter IX.B. , the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

TPI: 8023120

CERTIFICATION PAGE - CONTINUED

Certification Regarding Organizational Support

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Certification Regarding Federal Tax Obligations

When the proposal exceeds $5,000,000, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal tax obligations. By electronically signing the Certification pages, the Authorized Organizational Representative is certifying that, to the best of their knowledge and belief, the proposing organization:
(1) has filed all Federal tax returns required during the three years preceding this certification;
(2) has not been convicted of a criminal offense under the Internal Revenue Code of 1986; and
(3) has not, more than 90 days prior to this certification, been notified of any unpaid Federal tax assessment for which the liability remains unsatisfied, unless the assessment is the subject of an installment agreement or offer in compromise that has been approved by the Internal Revenue Service and is not in default, or the assessment is the subject of a non-frivolous administrative or judicial proceeding.

Certification Regarding Unpaid Federal Tax Liability

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Federal Tax Liability:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has no unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

Certification Regarding Criminal Convictions

When the proposing organization is a corporation, the Authorized Organizational Representative (or equivalent) is required to complete the following certification regarding Criminal Convictions:

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that the corporation has not been convicted of a felony criminal violation under any Federal law within the 24 months preceding the date on which the certification is signed.

Certification Dual Use Research of Concern

By electronically signing the certification pages, the Authorized Organizational Representative is certifying that the organization will be or is in compliance with all aspects of the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME		

TELEPHONE NUMBER	EMAIL ADDRESS	FAX NUMBER

Collaborative Research: AccessADVANCE
PROJECT SUMMARY

Project partners—the (1) University of Washington (UW) Disabilities, Opportunities, Internetworking and Technology (DO-IT) Center, (2) UW Human Centered Design & Engineering (HCDE) department, and (3) North Dakota State University (NDSU) ADVANCE program—request that the National Science Foundation (NSF) fund *AccessADVANCE* as an ADVANCE Partnership project.

Intellectual Merit
AccessADVANCE activities will take an intersectional approach to support the goal to increase the participation and advancement of individuals who identify as women with disabilities in academic science, technology, engineering, and math (STEM) careers. Female faculty with disabilities in STEM fields is an understudied and often invisible population. Issues related to this population are particularly important to address because even though there are relatively few women who currently hold faculty positions, any faculty member may at some point in her career become disabled, permanently or temporarily. To create truly inclusive and equitable academic workplaces, it is imperative to systematically address issues impacting the career advancement and success of female faculty with disabilities using an intersectional approach. Project objectives are as follows.

- ***For Institutions and Organizations****:* To implement systemic changes within postsecondary STEM departments and ADVANCE, INCLUDES, and other organizations that promote women in STEM so that those with disabilities in academic positions feel welcome, are fully included, and can achieve success.
- ***For the Entire Community****:* To expand an online Knowledge Base and other resources to share Q&As, case studies, and promising practices regarding institutional practices to increase the successful participation of women with disabilities in academic STEM careers.

To meet these objectives, *AccessADVANCE* project partners will employ practices that embrace the social model of disability, social justice education, disability as a diversity issue, sociotechnical systems theory, universal design (UD), and intersectionality. The model will be based on existing promising practices from previously funded projects, including those of the UW DO-IT Center, UW HCDE and the ADVANCE program at NDSU. These practices will be fine-tuned through formative evaluation as the project progresses. Specifically, project staff will:

- Recruit ADVANCE and INCLUDES projects and other stakeholders to (1) engage in a nationwide online community of practice and (2) attend on-site capacity-building institutes. The purpose of this engagement is to develop systemic change strategies for postsecondary STEM departments and other organizations that make them more welcoming to and inclusive of female faculty with disabilities. Participants will also help create resources that can be used to improve the climate and culture experienced by female faculty with disabilities in academic departments and relevant organizations.
- Encourage engagement of female faculty with disabilities and their allies in the ARC Network and the INCLUDES National Network in order to promote project objectives.
- Provide ongoing technical assistance to collaborators to make their policies, practices, and resources in programs and departments more welcoming and accessible to female faculty with disabilities.
- Develop a knowledge base and other online resources related to institutional practices to increase the success and advancement of women with disabilities in academic STEM careers.

Broader Impacts
The proposed project ensures long-term impact by building on and creating durable relationships among projects focused on STEM broadening participation research and practice, as well as developing and disseminating transformational research and practice to promote systemic changes. Ultimately, *AccessADVANCE* will improve STEM fields with the talents of female faculty with disabilities.

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Collaborative Research: AccessADVANCE
DESCRIPTION

Project partners—the (1) University of Washington (UW) Disabilities, Opportunities, Internetworking and Technology (DO-IT) Center, (2) UW Human Centered Design & Engineering (HCDE) department, and (3) North Dakota State University (NDSU) ADVANCE program—request that the National Science Foundation (NSF) fund *AccessADVANCE* as an ADVANCE Partnership project.

The following reported experiences of female faculty with disabilities illustrate the structural barriers that make academic STEM careers unwelcoming and inaccessible to women with disabilities.

- A faculty member in computer science has a health-related disability. At times health-related flares have limited her productivity or prevented her from traveling to conferences. A tenure and promotion process that took into consideration disability-related impacts on productivity, such as one that extends the deadline for earning tenure, could ease her path toward tenure.
- A blind faculty member and a faculty member with a mobility-related disability who uses speech recognition software both find that online tools related to human resources and health insurance are inaccessible. The campus should work to ensure all IT is accessible.
- A senior engineering graduate student who is blind often encounters journal articles, review processes, and submissions processes that are inaccessible to her. She faces delays in securing accessible articles and requires the help of sighted colleagues to prepare and review articles. Institutional policies that provide this support have allowed her to be successful and thus hopeful that she may be able to successfully pursue an academic career; increasing the awareness and skills of organizations who create inaccessible processes and products could reduce the need for such accommodations.
- A graduating PhD student with multiple invisible disabilities applying for faculty jobs has been invited to on-campus interviews. She has dietary restrictions and needs an accessible hotel room. She is concerned about requesting accommodations due to stigma. An institutionalized interview process that welcomes applicants with diverse characteristics and explicitly states how to request accommodations could help in her interview process but also make it clear that this academic department supports a culture of inclusion that makes female faculty, including those with disabilities, feel welcome and allows them to be fully included and successful.
- A faculty member who is quadriplegic has difficulty traveling, but has participated in conferences remotely using a telepresence robot. Institutional support and funding for shipping the robot has allowed her to participate effectively in research conferences.
- A faculty member who is hard of hearing was frustrated that videos shown at a faculty meeting were not captioned. After she brought up this issue, the department agreed to caption videos used in the future. The department received positive feedback from multiple faculty members that included non-native speakers of English and faculty members with age-related hearing loss.
- A faculty member with a young daughter finds that her classes are all scheduled in evenings. Due to a disability-related need to use public transportation, she does not arrive home before her daughter goes to bed. She would benefit from institutionalized practices of a department that take into account disability-related issues when scheduling courses.

In the proposed *AccessADVANCE* project, these stories and others from women with disabilities in academic STEM careers will inform strategies that institutions can employ in order to be more inclusive and supportive of female faculty with disabilities.

I. INTELLECTUAL MERIT, NEEDS, AND THEORETICAL AND CONCEPTUAL FRAMEWORKS

The intellectual merit of the project and the needs and theoretical and conceptual frameworks that support the practices of *AccessADVANCE* are, respectively, summarized in the following two subsections.

I.A. INTELLECTUAL MERIT

AccessADVANCE activities will support the goal to increase the successful participation and advancement of individuals who identify as women with disabilities in academic science, technology, engineering, and math (STEM) careers. Female faculty with disabilities in STEM fields is an understudied and often invisible population. Issues related to this population are particularly important to address because even though there are relatively few women who currently hold faculty positions, any faculty member may at some point in her career become disabled, permanently or temporarily. It is also important to take an intersectional approach because the experiences and success of female faculty with disabilities are also impacted by institutional practices related to race, ethnicity, and other characteristics.

To create truly inclusive and equitable academic workplaces, it is imperative to systematically address issues impacting the career advancement and success of female faculty with disabilities using an intersectional approach. Project objectives are as follows.

- ***For Institutions and Organizations****:* To implement systemic changes within postsecondary STEM departments and ADVANCE, INCLUDES, and other organizations that promote women in STEM so that those with disabilities in academic positions feel welcome, are fully included, and can achieve success.
- ***For the Entire Community****:* To expand an online Knowledge Base and other resources to share Q&As, case studies, and promising practices regarding institutional practices to increase the successful participation of women with disabilities in academic STEM careers.

AccessADVANCE will create a nationwide community that advocates for institutional changes that make academic careers more welcoming and accessible to women with disabilities. Composed of female faculty with disabilities in STEM positions, their allies, other ADVANCE projects, and INCLUDES projects, the community will implement strategies to ensure that recruitment and advancement activities at their institutions are welcoming and accessible to women with disabilities with an intersectional mindset. *AccessADVANCE* partners and participants will also create online materials to encourage and support other institutions in implementing such strategies.

AccessADVANCE will employ practices that embrace the social model of disability, social justice education, disability as a diversity issue, universal design (UD), intersectionality, and sociotechnical systems theory. The model will build upon existing promising practices from NSF-funded projects, including those of the project partners – at the UW DO-IT Center, the UW HCDE department, and NDSU's ADVANCE program. These practices will be fine-tuned through formative evaluation as the project progresses. Specifically, project staff will focus on these actions:

- Recruit ADVANCE and INCLUDES projects and other stakeholders to (1) engage in a nationwide online community of practice and (2) attend on-site capacity-building institutes. The purpose of this engagement is to develop systemic change strategies for postsecondary STEM departments and other organizations that make them more welcoming to and inclusive of female faculty with disabilities. Participants will also help create resources that can be used to improve the climate and culture experienced by female faculty with disabilities in academic departments and relevant organizations.
- Encourage engagement of female faculty with disabilities and their allies in the ARC Network and the INCLUDES National Network in order to promote project objectives.
- Provide ongoing technical assistance to collaborators to make their policies, practices, and resources in programs and departments more welcoming and accessible to female faculty with disabilities.
- Develop a knowledge base and other online resources related to institutional practices to increase the success and advancement of women with disabilities in academic STEM careers.

Achieving the objectives of the proposed project will advance knowledge about how postsecondary

STEM departments, postsecondary administrations, and other organizations can engage all segments of the population in their work by making structural changes that create departmental norms, policies, practices, and cultures that are inherently inclusive of female faculty with disabilities in STEM. *AccessADVANCE* will help ADVANCE and INCLUDES projects and STEM academic departments

- Make academic recruitment and tenure processes more welcoming and accessible to female faculty with disabilities;
- Ensure departmental meetings, events, and other activities are welcoming to, accessible to, and inclusive of female faculty with disabilities in STEM;
- Develop strategies to increase the retention and promotion rates of women with disabilities in academic STEM careers;
- Design websites and facilities to be accessible to women with disabilities;
- Make accessible computers and other equipment available to faculty members with disabilities;
- Develop durable, new collaborations between multiple stakeholders and organizations that lead to future innovative projects, policies and practices, and resources that increase the recruitment and retention of female faculty with disabilities in STEM; and
- Disseminate materials and best practices that can be used widely by academic departments and other organizations to ensure that women with disabilities in STEM faculty careers are fully included and have access to accessible products and environments that support their success.

The proposed activities designed to meet project objectives are informed by research and practice with respect to broadening participation, STEM, disabilities, change management, and organizational development as described below. They include capacity-building institutes, a Community of Practice, minigrants, a mentoring community, and resource development. Participants will explore creative and potentially transformative practices for addressing disability issues through institutional change that relate to the inclusion and success of women with disabilities in STEM academic positions.

Specifically, *AccessADVANCE* will address NSF's ADVANCE objectives by

- Incorporating intersectional approaches that include disability in ADVANCE equity strategies for STEM faculty, recognizing that gender, race, ethnicity, and disability do not exist in isolation from each other and from other categories of social identity;
- The adaptation and implementation of evidence-based systemic change strategies that have been shown to enhance equity for STEM faculty with disabilities in faculty careers; and
- The empowerment of individual and organizational stakeholders to enhance equity for STEM faculty with disabilities in academic workplaces and the academic profession.

AccessADVANCE will be led by the DO-IT Center—which has undertaken more than twenty-five years of NSF-funded research and practices regarding the increase in the participation and success of individuals with disabilities in STEM education and careers and the use of technology as an empowering tool. The founder and director of DO-IT and PI of the proposed project, Dr. Sheryl Burgstahler, is currently co-PI of *AccessComputing*[1] funded since 2006 to increase the participation of people with disabilities in computing fields; the PI of *AccessCyberlearning*, which services to make the next generation of online tools and pedagogy inclusive of students and instructors with disabilities; *AccessISL*, which is working to make public exhibits and other informal science learning (ISL) opportunities accessible to people with disabilities; and *AccessINCLUDES*, which has incorporated disability-related projects and organizations into the INCLUDES National Network. She also serves on the Advisory Board of the Hub for the Includes National Network. Dr. Burgstahler is an affiliate professor in the UW College of Education and recognized internationally as a leader in applications of UD to teaching and learning, technology, academic departments, and campus services as well as legal compliance with respect to inclusive practices. She is the author or co-author of more than sixty articles in peer-reviewed

publications, editor of four peer-reviewed books/journal issues, author/co-author of eight books and six book chapters, author of more than one hundred other publications, and director of projects that have produced more than forty video presentations. *AccessADVANCE* builds on the strong foundation developed by earlier projects led or co-led by the DO-IT Center.

Co-PI Cecilia Aragon, who is a female faculty member with a disability, is director of the Human Centered Data Science Lab, professor in the Department of Human Centered Design & Engineering, co-director of the UW Data Science Master's Program, and senior data science fellow at the eScience Institute at the UW in Seattle. In 2016, Aragon was the first Latina to be named to the rank of Full Professor in the College of Engineering at the UW. Her research focuses on human-centered data science, an emerging field at the intersection of human-computer interaction (HCI), computer-supported cooperative work (CSCW), and the statistical and computational techniques of data science. She has authored or co-authored over 100 peer-reviewed publications and received over $27M in grants. In 2008, Aragon received the Presidential Early Career Award for Scientists and Engineers (PECASE) for her work in collaborative data-intensive science. *AccessADVANCE* builds on the strong foundation of Dr. Aragon's work.

The *NDSU NSF ADVANCE FORWARD* project (2008-2016) at North Dakota State University established a Women Faculty with Disabilities (WFwD) task force to identify and modify policies and practices likely to deter the recruitment, retention, and promotion of STEM women faculty with disabilities. The *FORWARD* team implemented transformational efforts with a three-prong focus:

- *Campus Climate*: Creating a respectful and supportive environment that fosters women's success.
- *Advancement and Leadership*: Ensuring that female faculty, through mentoring and professional development, receive the knowledge, skills, support, and resources needed for successful teaching, research, and leadership.
- *Research*: Disseminating results broadly through workshops at other universities, professional conferences, and refereed publications.

A faculty survey was conducted to document perceptions of policies and/or attitudes regarding disability employment in departments/units as well as across NDSU as a whole. The survey included questions regarding clarity of disability policies/procedures and asked respondents to provide ratings regarding physical, cognitive, and psychological disability separately. An open forum was held to review the findings with faculty and to gather additional input for consideration by the WFwD task force; several policies were amended to reflect disability-equitable practices. Policy modifications enhanced and ensured consistency in approval of accommodation requests, tenure-clock extension requests, and the promotion and tenure review of candidates. *NDSU ADVANCE FORWARD* supported campus-wide disability awareness activities and hosted a series of working meetings and faculty professional development sessions with visiting scholar and disabilities activist Margaret Price. *AccessADVANCE* builds on the strong foundation of this earlier ADVANCE work.

Lessons learned from these three project partners and those of other practitioners include the following:

- **Strategically building relationships**
  - Partnerships between universities and other organizations have been successful in achieving increased accessibility for people with disabilities in STEM.
  - New collaborations benefit from facilitation by trained staff and funding for specific activities.
  - Bringing groups with similar goals together to share lessons learned and best practices makes their collective work more impactful than it would be for programs working separately.
  - It is important to build allies from all identities in order to create inclusive culture.
- **Promoting institutional change**
  - Effective interventions for individuals with disabilities are similar to those identified as effective in bringing other underrepresented groups into STEM.[2–12]

- ADVANCE programs specialize in supporting women faculty, but are not always knowledgeable about how to support female faculty with disabilities.
- Institutional cultural change takes time, transparency, and consistent messages from all levels of academic leadership.[13–18]
- Institutional changes can make STEM careers accessible to more individuals with disabilities.
- Most chairs want to support faculty, but often do not know how to support faculty with disabilities.
- The application of UD principles in professional development, meetings, events, and materials can benefit all participants and teach others how to offer inclusive programs.[19]
- Diverse stakeholders—including faculty, chairs, deans, and departmental support staff; disability resources offices; other university offices responsible for infrastructure; professional associations; STEM equity experts; and funding agencies—are needed to make institutional change.

- **The needs of female faculty with disabilities**
  - Female faculty with disabilities have little access to peers and mentors with disabilities in STEM, but online engagement can encourage participants to maintain their commitment to STEM careers and make such careers more inclusive of other females with disabilities.
  - People with disabilities face institutionalized external and internal challenges as well as microaggressions as they transition across the critical junctions to academic STEM careers.
  - Providing female faculty with mentors, institutional supports, and professional networks encourages them to stay with the university and to pursue leadership roles.[20–25]

I.B. ORGANIZATIONAL AND/OR DISCIPLINARY CONTEXT, DATA, AND PROBLEM ANALYSIS

To effectively support female STEM faculty, attention to disability issues must be woven into the entire sociotechnical ecosystem of STEM departments. Disabilities take many different forms, affect individuals in myriad ways, and may or may not be visible to others. Promotion and tenure processes, other institutional policies, IT, and facilities often do not adequately address issues related to access for people with disabilities. Despite legal mandates to ensure accessibility for students and employees with disabilities, departmental climates, mixed messaging, and concerns about what accommodations are reasonable and what they may cost result in broadening participation efforts that are not even fully accessible to people with disabilities. Funding *AccessADVANCE* is important because of the issues described in the following paragraphs.

Demand for innovators. Demand for STEM professionals is outpacing supply. Increasing the participation of individuals with disabilities in these fields is not just a matter of quantity, but of quality as well. Engaging more individuals with disabilities is consistent with NSF's mandate to support "the best ideas from the most capable researchers and educators."[26] Research in STEM fields can benefit from being informed by the experiences and unique expertise of women with disabilities.

Underrepresentation and motivation. The shortage of professionals in some STEM fields is due in part to the underrepresentation of women, racial/ethnic minorities, and people with disabilities.[27–31] In particular, individuals with disabilities are less likely than their nondisabled peers to succeed in careers;[32–34] complete degrees;[35–37] pursue STEM and computing,[38, 39] and enroll in graduate school.[40] Women and racial/ethnic minorities with disabilities face multiple challenges to pursuing these fields.[41–44] Some women with disabilities consider their disability to be a larger barrier to a STEM career than their gender.[45] Many educators and researchers are simply unaware of accessibility issues. More attention to these issues has the potential to broaden the participation in STEM to include more women with disabilities.

Potential of individuals with disabilities. Success stories of the relatively few individuals with disabilities in STEM fields demonstrate that opportunities do exist for those who successfully overcome barriers imposed by inaccessibility; inadequate supports; and lack of encouragement.[46, 47] Challenges

faced by faculty with disabilities include access to IT, labs, and physical spaces, as well as recruitment, promotion, and tenure processes that are not welcoming or accessible. Faculty with disabilities may need more time or funding to complete tasks at work and in their personal life. When they are able to procure accommodations at work, they may be given grudgingly. Individuals with disabilities can only take advantage of STEM faculty opportunities if they have access to technology, content, and resources; are encouraged to participate; and receive systemic support. People with disabilities are a heterogeneous group with respect to not only their specific disability, but also race, ethnicity, and other aspects of their identity. It is important to take an intersectional approach.

Model of disability. Traditional efforts to assist individuals with disabilities often embrace a "medical model" of disability, focusing on the "deficit" of the individual and how accommodations can be made so that they can fit into an established environment.[48, 49] In contrast, the "social model" of disability[50–52] considers variations in abilities—like those with respect to gender, race, and ethnicity—as simply diversity characteristics that are a natural part of the human experience. A social justice model of disability considers access to educational and career opportunities to be a civil right. This approach suggests that more attention should be devoted to designing products and environments that are welcoming and accessible to everyone.

Potential of design informed by diversity issues. Universal design (UD) can address the needs of a diverse audience of STEM faculty. UD and similar approaches (e.g., accessible design, ability-based design,[53] design for user empowerment[54]) require that the broad spectrum of abilities, disabilities, and other characteristics of potential users be considered when developing policies, products and environments, rather than simply designing for the average individual. UD is defined as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design"[55] UD takes this potential diversity into account in all design decisions. UD fits within an intersectional mindset by addressing a range of diversity issues beyond disability, is consistent with the social model of disability, and has the potential to reduce the need for individual accommodations.[56, 57] UD challenges society to construct a world where everyone can fully participate.

Need for professional development of NSF researchers and educators about disability-related issues. Many practitioners consider that disability service providers should address all disability issues at a university, but inclusive practices require engagement of multiple stakeholders in order to create a climate that includes individuals with disabilities.[58] Many diversity efforts, even those that aim to take an intersectional approach with regard to race and gender, do not address disability.[59, 60] A review of ADVANCE and INCLUDES project summaries suggest that many have yet to consider disability.

Underrepresentation of women with disabilities in STEM faculty careers. Estimates suggest that somewhere between 1.5%-8% of faculty have a disability.[61–63] People with disabilities who earn PhDs are more likely than those who do not have disabilities to be underemployed or become adjunct faculty.[64] Unsurprisingly, institutions that serve students with disabilities such as Gallaudet University have more faculty members with disabilities.[65] Very few disability services professionals have an appropriate background to provide accommodations for faculty members.[66] Many faculty with disabilities may not disclose their disability because of stigma or because accommodations may not address their needs.[67] Moreover, the accommodations faculty might need differ between disciplines due to disciplinary differences in faculty careers.[68] Further, documents like job ads that note that faculty must be able to walk, talk, hear, or lift 20 pounds send clear messages about how welcoming an institution is to faculty with disabilities.[69] There are a few resources with best practices for being welcoming and accessible to women with disabilities,[70, 71, 72, 73] but these practices have not been widely adopted nor are they specific to STEM careers. The accommodation process for faculty may be even more problematic than the process for students.[74] Microaggressions from other faculty, students, support staff, chairs, and administrators

affect female faculty with disabilities and need to be addressed institutionally. Policies developed to increase the representation of women in faculty careers—like part-time tenure track positions or stop the tenure clock policies—may be especially beneficial to women with disabilities in faculty roles.[75]

Sociotechnical systems theory. In attempting to combat structural discrimination in a field where technology plays an important role, it is important to understand the dynamics of how humans and technology interact in a complex sociotechnical system. Co-PI Cecilia Aragon has published multiple papers and a book that apply sociotechnical systems theory and human-centered data science to understand such systems. In addition, her personal experience as a faculty member with a disability gives her insight into the subtle dynamics of the sociotechnical systems operating within academic STEM departments; she understands how the need for self-advocacy presents an invisible burden on faculty with disabilities, particularly female faculty with disabilities, who may already be in a position of lower social capital within the department. Attention to disability—both visible and invisible—must be woven into the entire sociotechnical ecosystem of STEM departments. It must address both the humans in the department as well as the technology everyone uses. University administration must take proactive steps to counter microaggressions on university- or department-wide channels of communication. Training everyone in the department to understand the subtle social undercurrents, and develop empathy and understanding for persons with differing types of abilities, will lead to better outcomes for everyone. Central resources related to accessible computing equipment and furniture and budgeting for accommodations is critical.

The proposed project will address problems encountered by two stakeholder groups:

- ***Institutions and projects***: Many leaders in postsecondary institutions and directors of projects are unaware of (1) the rights and responsibilities of faculty members with disabilities with respect to accommodations; (2) how to make STEM departmental policies and cultures accessible to female faculty with disabilities; and (3) the roles that campus disability and other services and resources can play in designing accessible environments and delivering disability-related accommodations to faculty as well as participants in projects such as ADVANCE.
- ***Women with disabilities***: Some women with disabilities have little access to role models with disabilities. As minorities in their departments, female faculty members with disabilities face multiple challenges related to disability and gender—as well as issues associated with race, ethnicity, and other identities—that may increase the isolation they face, threaten their successful integration and engagement in their departments, and cause them to leave their positions.[76, 77]

Despite these existing problems, there are few coordinated efforts to make systemic changes that make academic STEM careers more welcoming and accessible to females with disabilities. The time is right for nationally-recognized leaders to undertake an ADVANCE project to address the unique barriers facing talented female faculty with disabilities.

III. ACTIVITIES DESCRIPTION

AccessADVANCE will engage a community of ADVANCE and INCLUDES programs, postsecondary STEM academic departments, as well as female faculty with disabilities and those who support, guide, and employ them in innovative and potentially transformative practices. *AccessADVANCE* will collaborate with this diverse group of stakeholders to promote systemic approaches toward making academic STEM careers welcoming to, accessible to, and inclusive of female faculty with disabilities. *AccessADVANCE* staff will engage collaborators in (1) an online community of practice; (2) capacity-building institutes where participants will share barriers and solutions, strategies, and resources for increasing the success and advancement of women with disabilities in academic STEM careers; (3) minigrants to support activities to expand, replicate, and disseminate systemic practices related to project objectives; and (4) ongoing professional development, consultation, and technical assistance to help them

make their policies, practices, culture, and resources welcoming and accessible to female faculty with disabilities. *AccessADVANCE* will (1) help prepare search committees to successfully target recruiting efforts to women with disabilities, (2) offer strategies to retain female faculty with disabilities and make the tenure and promotion process more accessible, and (3) encourage department chairs and other academic leaders to work toward cultural change that is welcoming and supportive of women with disabilities. *AccessADVANCE* will also develop resources for others to embrace institutional practices that promote access, success, and advancement of female faculty with disabilities in STEM.

The *AccessADVANCE* organizational structure is grounded in knowledge management,[78–80] collaboration,[81, 82] and social network theory and practice.[83–86] It validates multiple coordination mechanisms that earlier projects have employed as well as other NSF-funded projects have reported as successful in bridging institutional differences and geographic distances in multi-unit collaborations.[87–90] *AccessADVANCE* embraces a multi-faceted framework of systemic change, engagement, and inclusion in STEM. This framework provides a foundation for systemic changes that are sustainable, scalable, and widely applicable.

In reaching its objectives, *AccessADVANCE* will address challenges to achieving systemic adoption of new, inclusive practices within ADVANCE and INCLUDES projects and STEM departments by applying research-based approaches for managing change. On-site and online communication with participants will address the *reason* for change, the *content* of change, and the *process* of change[91] in meeting the project objectives. Project leaders will avoid roadblocks to change by adopting the ADKAR[92] model for promoting and sustaining change.

- **A**wareness of the need to change: Help participants understand why changes are needed to ensure that STEM academic departments are accessible to female faculty with disabilities (e.g., to meet legal obligations, to diversify the workforce, to achieve equity).
- **D**esire to participate and support change: Motivate participants and those with whom they work through role models, knowledge, engagement, encouragement, examples, and results.
- **K**nowledge of how to change: Share strategies for making STEM academic departments welcoming to, accessible to, and usable by female faculty with disabilities.[93–102]
- **A**bility to implement the change on a day-to-day basis: Provide engagement, resources, and professional development to support participants as they create change.
- **R**einforcement to keep the change in place: Engage with participants within a community of practice to sustain institutional change efforts.

III.A. PARTICIPANTS: ENGAGEMENT AND RECRUITMENT

AccessADVANCE will engage with collaborators nationwide, including leaders, support staff, and partners of (1) ADVANCE projects; (2) INCLUDES projects; (3) postsecondary female faculty with disabilities in STEM; (4) STEM projects that focus on individuals with disabilities, and (5) leaders in postsecondary STEM departments. The knowledge, skill sets, and spheres of influence of project participants will be diverse. Twelve organizations have already enthusiastically agreed to engage as collaborators. The positive response from initial recruitment indicates that, as with similar events in the past, project staff will be successful in recruiting a group of participants that represent a diverse set of stakeholders, have a large sphere of influence, and have the potential and interest to establish new collaborations. Additional collaborators will be recruited once the project is funded. Each collaborator will agree to

- engage in the project online community of practice;
- participate in a capacity-building institute;
- work with ADVANCE project staff and STEM departmental staff, faculty, and administrators to make institutional policies and procedures for recruitment and advancement more inclusive of female faculty with disabilities, with a focus on systemic changes to ensure project impact once NSF funding has ended;
- provide connections to other stakeholders, including female faculty members with disabilities, who might be interested in engagement, training, resources, and information available through *AccessADVANCE*;
- suggest topics to address in the *AccessADVANCE* Knowledge Base;
- promote the collection of disability status data in climate surveys and elsewhere whenever gender and minority status is collected;
- participate in bimonthly online meetings focused on topics of interest to the group (e.g., UD principles/guidelines, data collection options regarding disability status); and/or
- help create and disseminate project materials.

Collaborators will also be eligible to apply for minigrants to support activities aimed at creating systemic change that ensures that their departments or other organizations are welcoming and accessible to, and inclusive and supportive of, female faculty with disabilities.

III.B. COMMUNITY OF PRACTICE (COP)

Project partners and collaborators will engage in a nationwide online CoP. The CoP paradigm has origins in business; in a CoP, practitioners with common interests help each other improve practices.[103–105] This CoP model applies strategies employed in other DO-IT projects where, through online and teleconference communication, CoP members share perspectives and expertise; identify promoters and inhibitors of institutional change with respect to the project goal; share and implement successful practices; provide suggestions for project activities; share resources and insights for new and updated project materials; and recruit new members. A new Women in Academic STEM Careers CoP will engage STEM project partners and collaborators in planning, attending, and recruiting others to attend project training and capacity-building opportunities; ensure women with disabilities are invited to events that promote their pursuit of and support in academic STEM career positions; share strategies for making departments more welcoming and accessible to women with disabilities; discuss ways to build productive relationships with disability service offices that serve faculty; recruit women faculty and senior graduate students with disabilities to the e-mentoring community; and share resources. We expect at least 70 individuals to participate in the CoP by the end of the project. Although all project staff will engage in the CoP, one staff member will be assigned the role of CoP facilitator to ensure ongoing interaction within the group.

III.C. CAPACITY-BUILDING INSTITUTES, MINIGRANTS, AND OTHER TRAINING

Capacity-Building Institutes. *AccessADVANCE* personnel will conduct four capacity-building institutes (CBIs) for 40 individuals each—with 30-35 traveling to each CBI and others attending from the local area—representing a variety of stakeholder groups interested in promoting the participation and success of women in academic STEM careers. CBIs conducted by *AccessADVANCE* will be patterned after successful conferences hosted by earlier projects.[106–109]

One CBI will be a one-day activity held in the first year of the proposed project after a conference attended by a large number of ADVANCE or INCLUDES PIs such as a PI meeting, American Society for Engineering Education (ASEE) conference, or Collaborative Network for Engineering and Computing Diversity (CONECD) conference to serve as a needs assessment for the project. *AccessADVANCE* staff and participants at the CBI will share challenges and solutions regarding the recruitment and participation of women with disabilities in ADVANCE activities and academic STEM careers, as well as identify ways that *AccessADVANCE* can most effectively work with other ADVANCE and INCLUDES programs to increase the participation and advancement of women with disabilities in academic STEM careers. A CBI

in each of years two and four will include ADVANCE and INCLUDES personnel and other collaborators nationwide; each of these CBIs will last two days. In addition, a CBI will be held in year three online utilizing an accessible platform. Holding an online CBI takes a UD approach to offering meetings in multiple formats to allow for the participation of the widest group possible.

Multiple stakeholder groups will be represented in each CBI; these groups include women faculty with and without disabilities, department chairs and deans, leaders of projects and programs that serve women and/or people with disabilities who could potentially pursue academic STEM careers, and campus disability support services. Each CBI will include women with disabilities as speakers and panelists. Following content-rich presentations in CBIs, participants will identify actions that stakeholders can take to increase the participation and advancement of women with disabilities in academic STEM careers, focusing the discussions on systemic change. Proceedings will be printed and published on the project website to inform ADVANCE, INCLUDES, and other project directors, postsecondary institutions, policy makers, and NSF program officers of challenges and promising solutions for increasing the participation and advancement of women with disabilities in academic STEM careers. All CBI participants will be invited to continue to engage through the project CoP.

Minigrants. *AccessADVANCE* will use DO-IT's fine-tuned seed grant application process and outcomes-based evaluation to encourage colleagues to undertake activities to expand, replicate, and disseminate practices related to project goals. Collaborators can request seed grants

- to host meetings or trainings that support project objectives;
- for registration, materials, and travel expenses to deliver presentations, host exhibits or special interest groups, or otherwise share project resources at conferences.

Minigrant recipients are required to submit data to success outcomes and impacts as well as a draft of an article for the *AccessADVANCE* Knowledge Base.

Individual consultation will be offered to collaborators in order to help them make their practices, policies, and culture more welcoming and accessible to female faculty with disabilities, inform research and practices with knowledge of disability-related issues, and address disability-related issues in recruitment and retention of female faculty with disabilities, professional development, and project evaluation.

III.D. COMMUNICATION STRATEGY

Project activities and products will be informed by the body of knowledge that surrounds research and practice questions regarding inclusion of people with disabilities in STEM and will in turn add to that body of knowledge. All project products will be presented in accessible formats. A specific *AccessADVANCE* website will be created. In collaboration with project participants and the ADVANCE and INCLUDES projects, *AccessADVANCE* will link to relevant work of earlier projects and add new materials that specifically support current and future ADVANCE and INCLUDES projects.

A searchable online ***AccessADVANCE* Knowledge Base** will be created by project partners and collaborators. It will include questions and answers, case studies, and promising practices that address issues related to systemic practices for supporting female faculty with disabilities. The DO-IT Knowledge Base developed in earlier projects[110] contains more than 800 articles. Feedback from users indicates that the Knowledge Base is a catalyst and resource for educators, service providers, and students. Project staff will flag current articles of relevance to create the initial collection for the *AccessADVANCE* Knowledge Base. New articles will be drafted during CBIs and within the CoP and mentoring community and edited by project staff. *AccessADVANCE* will add or update more than 20 articles. Additions will highlight inclusive practices adopted by collaborators related to institutional practices to recruit and retain women with disabilities in STEM faculty roles. *AccessADVANCE* staff will work with project participants to

synthesize lessons learned through the project and write promising practices that share how disability-related issues can be adopted by institutions and/or integrated into ADVANCE or INCLUDES projects.

Proceedings of CBIs will be posted on the website. They can be used as a guide by others who are interested in pursuing the *AccessADVANCE* project objectives.

A five-minute **video** regarding how academic STEM careers can be made welcoming and accessible to and inclusive and supportive of women with disabilities will be created.

Other project publications created by partners with guidance from collaborators include a publication with guidelines on how to make STEM academic positions more inclusive of female faculty with disabilities, and one on how to address disability within an ADVANCE project. At least four articles will be published in STEM, faculty, and disability-related journals and other periodicals. These materials will guide partners, collaborators, and others in delivering short presentations to STEM faculty and administrators as part of regular departmental/college/university meetings that will provide an overview of legal obligations, disability-related accommodations, UD, campus services, and resources that can help them reduce barriers to the full participation of women with disabilities in academic STEM positions.

Professional Development and Technical Support. By the end of the project, it is expected that more than 1,000 individuals will have benefited from training and/or technical support offered by *AccessADVANCE*. The project video and publications will be disseminated widely. Other training materials, technical support, and professional development options will be tailored to the specific interests and needs of collaborators and their parent institutions. For example, collaborators can request that project staff provide training online or at their site related to project goals. Partners and collaborators will deliver training and disseminate materials at a total of at least 20 (1) conferences focused on disabilities (e.g., the annual event of the Association for Higher Education and Disabilities, AHEAD) to share opportunities in academic STEM careers for women with disabilities and (2) events focused on STEM and higher education (e.g., those sponsored by the American Society for Engineering Education, ASEE; the Association for Women in Science, AWIS; Women in Engineering Proactive Network, WEPAN; Special Interest Group on Computer Science Education, SIGCSE; Collaborative Network for Engineering and Computing Diversity, CONECD) to share strategies for including women with disabilities in academic STEM careers. These training options are expected to reach 500 practitioners. Resources will also be shared through social media channels, the ARC Network, and the INCLUDES Coordination Hub, with whom the project PI is a member of the Advisory Board and has an existing relationship through DO-IT's *AccessINCLUDES* project.

IV. PROJECT EVALUATION

Elizabeth Moore, of Applied Inference, will serve as the external evaluator. Lyla Crawford will serve as internal evaluator, under the leadership of the external evaluator. The evaluation plan adheres to guidelines established by the Government Performance and Results Act (GPRA) Modernization Act of 2010,[111] and Common Guidelines for Education Research and Development.[112] Project methods and instruments have also been informed by many years of experience working with an external evaluator in evaluating similar project interventions (e.g., CoP, CBIs).

The evaluation will focus on *AccessADVANCE*'s ability to support and influence other projects in efforts that support the project goal and objectives. The ongoing **formative evaluation** will track project implementation and progress toward the goal and objectives, thus informing program development to ensure optimal outcomes. The formative evaluation will address these evaluation questions:

- Is the *AccessADVANCE* project on track?
- Are collaborations occurring?
- Are CBI participants and others who receive technical support learning to and motivated to make their materials and processes more welcoming and accessible to women with disabilities?
- Are collaborators making use of minigrants?
- What evidence suggests that *AccessADVANCE* will have long-term impact?

The **summative evaluation** will focus on project outcomes and expected impact of the project overall and its success in reaching the project goal of increasing the participation and advancement of women with disabilities in academic STEM careers. The anticipated project impacts also include institutional changes among participating collaborators and other organizations (e.g., ADVANCE, INCLUDES, and other projects and STEM departments) that will lead to ongoing efforts to become more welcoming and accessible to women with disabilities in academic STEM careers. The summative evaluation will assess these aspects:

1. Changes in engagement, commitment, practices, trainings, and policies among participating organizations expected to make their organization more welcoming and accessible to women with disabilities in or pursuing academic positions in STEM, as well as the sustainability of these changes. Where changes have not been made, barriers will be examined.
2. The commitment and capacity of participating STEM departments and other organizations to continue to increase accessibility in order to continue to increase success and advancement of women with disabilities in academic STEM careers.
3. The impact to date of any changes in the participating departments and organizations made on the successful participation and advancement of women with disabilities pursuing or advancing in STEM careers.
4. The effectiveness of different activities in producing commitment among collaborators or other organizations, and in producing measurable results, along with suggestions for improvement.

DO-IT's previously developed systems and instruments will be fine-tuned to track project data and otherwise support the evaluation. The internal evaluator will work with project staff to track activities and collect data on outputs for the formative evaluation. The internal and external evaluators will work together to track progress toward outcomes prior to the end of the project, both to identify potential barriers to project success and inform midcourse corrections, and to prepare for the summative evaluation. Both evaluators will remain alert for unintended outcomes and impacts.

As mentioned above, we will gauge sustainability by assessing the level, extent, and type of commitment to inclusivity among participating organizations, seeking indicators of policies, processes, and resources to support ongoing inclusivity efforts after grant funding has ended.

IV.A. TRACKING OUTPUTS AND THE FORMATIVE PROCESS

Staff will record membership, attendance, and interactions in the CoP, trainings, and conferences, as well as use of project products. The evaluation team will review output data, recommend data collection improvements to staff, and compare data collected to determine if progress is satisfactory. The expectation is that all of the targeted numbers will be reached or surpassed.

IV.B. ASSESSING DEVELOPMENT OF CAPACITY AND COLLABORATIONS

Participants in the on-site conference will complete surveys to collect demographic information, changes in knowledge and skills, and plans for actions relevant to the project goal and objectives, including plans

for collaboration with specific groups, and factors associated with change. Follow-up interviews will be conducted with a sample of participants to assess actual change (e.g., changes in training regarding equity and awareness, changes to and/or new policies and practices, and reports of enhancements to the culture and climate experienced by participants), gather promising practices, identify barriers to success, assess the perceived value of *AccessADVANCE* engagement, and determine perceived value of project resources for ADVANCE projects and STEM academic departments. It is expected that the majority of the participants will report increased knowledge and skills around the project goal and objectives and document related plans for action. Based on past experiences with similar projects, it is expected that follow-up interviews with participants after engagement will reveal that a majority of them have implemented practices that support the project objectives.

IV.C. EVALUATING IMPACT OF THE PROJECT OVERALL

Project impact will be measured as a function of increased commitment toward creating a more welcoming and accessible environment for women with disabilities pursuing academic STEM careers, as a function of actual changes made in ADVANCE projects and STEM academic departments aimed at creating a more welcoming and accessible workplace. The evaluation will also assess the effectiveness of *AccessADVANCE* resources and activities to support these changes (from the perspective of the *AccessADVANCE* collaborators and the perspective of the women participating in the projects. Finally, informants will be asked directly and indirectly to assess the likelihood of sustaining any changes made during the life of the grant, as well as the likelihood that their organization will continue to make changes toward creating a more welcoming and accessible workplace. As part of this process, the evaluators will seek input on the quality of the *AccessADVANCE* Knowledge Base, website, and other project products for their capacity to support organizations in becoming more welcoming and accessible to all employee in academic STEM positions.

V. PROJECT MANAGEMENT

The DO-IT Center will provide overall direction for the *AccessADVANCE* partnership with the UW Human Centered Design & Engineering department and NDSU's ADVANCE leadership. Partners and the project evaluation team will regularly meet. Participants in the CoP and collaborators will serve as an external advisory group providing suggestions for and feedback on project products, resources, and activities. The ARC Network, INCLUDES Coordination Hub and UW ADVANCE will serve on an internal steering committee to provide more specific feedback on implementation, resolve organizational issues, and ensure that activities and products meet the project goals and objectives.

Sheryl Burgstahler, PI and Director, will provide overall direction for support staff and for engagements with participants through CoPs and the conferences; she will approve project products and deliver webinars. ***Canan Bilen-Green, PI*** **at NDSU,** and ***Cecilia Aragon, co-PI*** **at UW,** and will engage in planning the CBIs, engaging in the CoP, recruiting participants, encouraging collaborators to engage, developing products and resources, and referring women with disabilities to the online mentoring community, with help from support staff.

Under Dr. Burgstahler's direction, support staff will serve in the following roles:

- ***Brianna Blaser, Project Manager***, who has a Ph.D. in women studies and a wide range of experiences supporting women with disabilities in STEM, will provide day-to-day management of project activities; coordinate product creation, conferences and trainings; and facilitate engagement in the CoP. ***Kayla Brown,*** who has a background in disability justice and social work and has a disability herself, will assist.

- ***Elizabeth Woolner, Publications Coordinator***, will develop and edit the website and publications.
- ***Lyla Crawford, Product and Internal Evaluation Liaison***, will manage minigrants, develop evaluation instruments, liaise with external evaluator, and draft reports.
- ***Student Support Staff*** will assist with conferences, evaluation, publications, and website.
- ***Elizabeth Moore, External Evaluator***, of Applied Inference, will serve as a consultant.

Below is a summary of how the project will unfold.

Activity ***Year:***	***One***				***Two***				***Three***				***Four***				***Five***			
Quarter:	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Fine tune & update evaluation plan																				
Plan for next year activities																				
Contact initial collaborators																				
Meet with Advisory Board																				
Conduct formative evaluation																				
Develop internal evaluation reports																				
Director reviews internal reports																				
Complete gap analysis & adjust plans																				
Recruit for CoP																				
Engage CoP																				
Recruit for e-mentoring community																				
Engage e-mentoring community																				
Conduct CBIs and other training																				
Provide technical support																				
Attend ADVANCE PI & other mtgs																				
Promote, award, & evaluate minigrants																				
Develop project video																				
Develop Knowledge Base content																				
Develop case studies for KB																				
Plan publication of results																				
Disseminate project products																				
Develop articles for publication																				
Plan, conduct summative evaluation																				
Conduct final project evaluation																				
Submit annual, final reports to NSF																				

VI. COMMITMENT AND SUSTAINABILITY

We have a network of organizations that have agreed to participate in *AccessADVANCE*. Letters of commitment from collaborators have been submitted as supplementary documents. Project products will continue to be updated by the DO-IT Center after project funding has ended to ensure long-term impact. Additionally, project materials and resources will be disseminated broadly through conferences specifically selected to provide connections for NSF broadening participation portfolio programs and projects.

VII. BROADER IMPACTS OF THE PROPOSED WORK

AccessADVANCE supports the broadening participation goals and objectives of the NSF ADVANCE program. It engages individuals with disabilities, including those from other underrepresented and underserved groups, and organizations with transformational practices that make STEM learning and practice accessible to the broadest audience, which includes women with disabilities in academic STEM

careers. The proposed project ensures long-term impact by building on and creating durable relationships among projects that enhance the infrastructure for STEM broadening participation research and practice, as well as developing and disseminating transformational research and practice to enhance understanding and promote systemic changes in postsecondary STEM departments, ADVANCE projects, and other organizations. Ultimately, *AccessADVANCE* will broaden participation in STEM academic careers and improve those fields with the talents and perspectives of female faculty with disabilities.

VIII. RESULTS FROM PRIOR NSF SUPPORT

Sheryl Burgstahler is Co-PI for The Alliance for Access to Computing Careers (AccessComputing) Third Extension NSF Award #**CNS-1539179; Amount: $3,829,990; Award Period: 09/01/2015 - 08/31/2020***; AccessComputing Third Extension* serves increase the participation of people with disabilities in postsecondary studies and careers in computing. **Intellectual Merit**: Participant tracking through critical junctures[113] to computing careers supports the efficacy of evidence-based interventions by documenting higher levels of success—in terms of high school graduation, college attendance/persistence, computing majors/degrees & careers—of participants with disabilities than of people with disabilities in comparison groups. **Broader Impacts:** Served more than 535 students with disabilities; outcome data suggests increased interest, knowledge, and skills with respect to computing. More than 6,701 practitioners engaged; outcome data suggests increased knowledge regarding serving swd & plans to take actions to make computing more accessible and welcoming to swd. Institutional data nationwide suggest positive impacts, e.g., documented improvements in website accessibility of websites in computing departments nationwide.[114] Over 6,617 individuals reached in dissemination efforts; Published 596 articles in Knowledge Base;[115] 11 articles/chapters in peer-reviewed journals/books[116–126] and 21 other publications.[127–147]

Cecilia Aragon is the PI for CI-TEAM Demo: Collaborative Games for Bioinformatics Education of NSF award #1135479; Amount: $250,000; Award Period: 10/1/11-9/30/14. This project applied the socio-emotional mechanics of online collaboration and multi-player game to create a novel educational game, *Max5*.[148] **Intellectual merit** includes empirical and conceptual contributions to research in educational game development and the educational component of data science and bioinformatics. **Broader impact**: *Max5* has been played by over a hundred high school students in multiple classrooms in schools with some of the most diverse populations in Seattle. The long-term benefits include (i) the concepts of cyber problem solving among a diverse group of young people, including underrepresented minorities and women; and (ii) the production of conceptual models that help better understand the larger relationships between and the sociotechnical systems involving people, educational games, and computational technologies. Multiple publications have been produced.[149–153]

Canan Bilen-Green is the PI for NDSU ADVANCE FORWARD: Transforming a Gendered Institution NSF Award #HRD-0811239; Amount: $3,867,120; Award Period: 8/2008-7/2016; (PIs: Bilen-Green, Burnett, Magel, Schnell, Smith). **Intellectual Merit:** This award substantially increased women in faculty and administrative positions, produced new and revised policies (tenure extension; position announcement procedures; modified student evaluation of instruction; support for on-campus childcare; emphasized spousal/partner hiring; modified duties; search committee and PTE committee training; others), offered support for women faculty (LEAP grants, course buyouts, travel grants, leadership development), and developed the now nationally recognized model for men engagement: Advocates and Allies. **Broader Impacts:** Five refereed journal articles; one MS; one Ph.D.; widely distributed and adopted Ally training materials; list of over 30 refereed conference papers and presentations available on the project's website.[154]

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Affiliate Professor, Center on Disability Studies, University of Hawaii–Manoa

Professional Preparation
UW, Seattle, WA, B.S., Mathematics Education, 1970
UW, Seattle, WA, M.A., Mathematics, 1975
UW, Seattle, WA, Ph.D., Policy, Governance, Administration of Higher Education, 1992

Appointments
Administrative Experiences
Diversity Director, *AccessERC*, Center for Sensorimotor Neural Engineering, UW, 2015–present.
PI & Director, *AccessCyberlearning*, UW, 2015–present.
PI & Director, *AccessCSForAll*, UW, 2014–present.
PI & Director, *AccessEngineering*, UW, 2014–18.
Co-PI & Co-Director, *The Alliance for Access to Computing Careers* (*AccessComputing*), UW, 2006–present.
PI & Director, *AccessSTEM*, UW, 2002–17.
Founder & Director, DO-IT (Disabilities, Opportunities, Internetworking, & Tech.), UW, 1992–present.
Director, Accessible Technology Services, UW Information Technology, UW, 1991–present.
Manager/Assistant Director, Micro Support Group/Desktop Computing Services, UW, 1984–91.
Chair, Department of Mathematics & Computer Science, Saint Martin's College, 1980-84.
Director, Computer In-service, Microcomputer Resource Center, Saint Martin's College, Lacey, WA, 1982-84.
Education Center Administrator, U.S. Department of Defense, South Korea, 1975-76.
Postsecondary Teaching—Mathematics, Computer Science & Applications, Teacher Education
UW, 1974–75, 1984–2000; Saint Martin's College, 1978–84; Seattle Pacific University, WA, 1981; University of Puget Sound, Tacoma, WA, 1978–79; Fort Steilacoom Community College, Tacoma, WA, 1977–79; University of Maryland, Los Angeles City College, South Korea, 1976.
Pre-college Teaching Experiences—Mathematics
Bethel Junior High School and High School, Tacoma, WA, 1977–78; Department of Defense Prep School, Osan Air Base, South Korea, 1975–76; Showalter Junior High School, Seattle, WA, 1971–74.

Products
Selected Products Closely Related to Proposal
Blaser, B., Bennett, C., Ladner, R., Burgstahler, S., & Mankoff, J. (2019). Perspectives of women with disabilities in computing. In C. Frieze & J. L. Quesenberry (Eds.), *Cracking the digital ceiling: Women in computing around the world* (pp. 159-182). Cambridge, UK: Cambridge University Press.
Bellman, S., Burgstahler, S., & Hinke, P. (2015). Academic coaching outcomes for students with disabilities pursuing science, technology, engineering, and mathematics. *Journal of Postsecondary Education and Disability, 28*(1), 101-106.
Burgstahler, S. (Ed.). (2011). Special Issue: STEM Education. *Journal of Postsecondary Education and Disability*, *24*(4), 265–267. www.ahead.org/publications/jped/vol_24
Burgstahler, S. (2011). Universal design: Implications for computing education. *ACM Transactions in Computing Education*, *11*(3), 19:1–17.
Burgstahler, S., & Chang, C. (2009). Promising interventions for promoting STEM fields to students who have disabilities. *Review of Disability Studies: An International Journal*, *5*(2), 29–47.
Other Selected Products
Burgstahler, S. (2017). Fully including students with disabilities in online courses: Tips for instructors. *Currents in Teaching and Learning*, *9*(2), 8-23.
Burgstahler, S. (Ed.) (2015). *Universal design in higher education: From principles to practice* (2nd ed.). Boston: Harvard Education Press.

Burgstahler, S. (2015). Opening doors or slamming them shut? Online learning practices and students with disabilities, *Social Inclusion, 3(4)*.
Burgstahler, S., & Thompson, T. (Guest Eds.). (2014). *Information Technology and Disabilities Journal, 14*(1).
Burgstahler, S. (2009). Universal design of distance and online learning. In P. L. Rogers, G. A. Berg, J. V. Boettecher, C. Howard, L. Justice, & K. D. Schenk (Eds.), *Encyclopedia of Distance Learning* (2nd ed., pp. 2195–2201). Hershey, PA: IGI Global.

Synergistic Activities

The following activities have led to many awards, including the National Information Infrastructure Award; U.S. Presidential Award for Mentoring in Science, Mathematics, Engineering & Technology; Catalyst; Strache Leadership Award; and Outstanding Program Award and Professional Recognition Award from the Association of Higher Education and Disability.

DO-IT Scholars, Campers, & Pals

Developed programs that help students with disabilities successfully transition to postsecondary education and employment in science, technology, engineering, and mathematics (STEM). The DO-IT Scholars program has served as a model for other mentoring and student transition programs nationwide and internationally (e.g., DO-IT Japan, doit-japan.org/doit/). Activities further developed, tailored to specific organizations, institutionalized, and replicated through the NSF-funded *AccessSTEM* and *AccessComputing* projects.

Disability Awareness Training for Faculty & Other Stakeholders

Developed and delivered training modules for individuals with disabilities, parents, K-12 educators, college faculty and administrators, and employers to learn successful strategies for working with individuals with disabilities. Materials continue to be disseminated internationally, with high rates of Internet access.

Outreach Materials

Developed and disseminated videos, printed materials, web resources and other training materials for individuals with disabilities, parents, K-12 educators, college faculty and administrators, employers, service providers, and others to improve access to education and employment opportunities for individuals with disabilities nationwide. The *AccessSTEM* Knowledge Base (www.uw.edu/doit/Stem/faqs.html) features over 800 Q&As, case studies, and promising practices and is accessed more than 60,000 times per month.

PI & Director, AccessSTEM NSF grant

AccessSTEM builds on established collaborations and brings together proven practices to create a unique, comprehensive set of interventions related to accessibility of all STEM fields. Lead a team of stakeholder partners including postsecondary institutions, precollege STEM educators, disability services, veteran associations, projects that broaden participation in STEM, and industry and career services. Direct research on the *AccessSTEM* Longitudinal Transition Study that tracks the progress of students with disabilities through critical junctures that lead to STEM degrees and careers.

Co-PI & Co-Director, AccessComputing NSF grant

AccessComputing networks with twenty other computer science departments at postsecondary institutions nationwide to increase the participation of students with disabilities in computer science and IT programs and make computer science departments more welcoming and accessible to them.

Cecilia R. Aragon

Professor, Dept. of Human Centered Design & Engineering
Adjunct Professor, Computer Science & Engineering
Adjunct Professor, Electrical & Computer Engineering
Adjunct Professor, Information School
Senior Data Science Fellow, eScience Institute
University of Washington, http://faculty.washington.edu/aragon
aragon@uw.edu

Professional Preparation

California Institute of Technology	Mathematics	B.S. 1982
University of California, Berkeley	Computer Science	M.S. 1987
University of California, Berkeley	Computer Science	Ph.D. 2004

Appointments

2016-	Professor, Dept. of Human Centered Design & Engineering, U. Washington
2010-2016	Associate Professor, Dept. of Human Centered Design & Engineering, U. Washington
2011-	Visiting Faculty, Computational Research Division, Lawrence Berkeley National Lab
2005-2011	Staff Scientist, Computational Research Division, Lawrence Berkeley National Lab
1996-2005	Computer Scientist, Computational Sciences Division, NASA Ames Research Center
1987-1996	Software Developer, Aragon Consulting
Sum. 1984	Research Assistant, Computer Science, Bell Laboratories

Selected relevant products:

1. Nan-Chen Chen, Lavanya Ramakrishnan, Sarah S Poon, and Cecilia Aragon. "Harnessing Complexity in High Performance Computing Ecosystems: A Complex Adaptive Systems Framework," *Proceedings of the 52nd Hawaii International Conference on System Sciences*, 10 pages (2019).
2. Himanshu Zade, Margaret Drouhard, Bonnie Chinh, Lu Gan, and Cecilia Aragon. "Conceptualizing Disagreement in Qualitative Coding," *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. Paper 159, 11 pages (2018).
3. S. Hong, R. Kocielnik, S. Battersby, M. Yoo, J. Kim, C. Aragon. "Designing Interactive Distance Cartograms to Support Urban Travelers." *Proceedings of IEEE Pacific Visualization Symposium*, 81-90, 2017.
4. Nan-Chen Chen, Sarah S. Poon, Lavanya Ramakrishnan, Cecilia Aragon. "Considering Time in Designing Large-Scale Systems for Scientific Computing," *Proceedings of the ACM Conference on Computer Supported Cooperative Work*, CSCW '16, San Francisco, CA (2016), 14 pages.
5. M. Brooks, K. Kuksenok, M. Torkildson, D. Perry, J. Robinson, P. Harris, O. Anicello, T. Scott, A. Zukowski, C. Aragon, "Statistical Affect Detection in Collaborative Chat." *Proceedings of the ACM Conference on Computer Supported Cooperative Work,* CSCW '13, San Antonio, TX, 2013.

Other selected products:

1. Jenna Frens, Ruby Davis, Jihyun Lee, Diana Zhang, and Cecilia Aragon. "Reviews Matter: How Distributed Mentoring Predicts Lexical Diversity on Fanfiction.net," *Proceedings of the 2018 Connected Learning Summit*, 8 pages (2018).
2. C. Aragon, S. Poon, G. Aldering, R. Thomas, and R. Quimby, "Using Visual Analytics to Develop Situation Awareness in Astrophysics," *Journal of Information Visualization*, 2009.

3. C. Aragon, S. Bailey, S. Poon, K. Runge, and R. Thomas, "Sunfall: A Collaborative Visual Analytics System for Astrophysics", *J. Phys.: Conf. Ser*. 125 012091, 2008.
4. D. Perry, J. Robinson, S. Cruz, C. Aragon, J. Chowning, M. Peters. "Game Design for Bioinformatics & Cyberinfrastructure Learning: A Parallel Computing Case Study." *Journal of Concurrency and Computation: Practice and Experience,* 2014.
5. C. Aragon and S. Poon, "Designing Scientific Workflow Management Systems for Data-Intensive Astrophysics Projects," Designing Cyberinfrastructure to Support Science Workshop, CSCW 2008: *ACM Conference on Computer Supported Cooperative Work*, San Diego, CA, 2008.

Synergistic Activities

1. Presidential Early Career Award for Scientists and Engineers (PECASE) – For seminal research in data-intensive science, received the highest honor bestowed by the United States government on outstanding scientists and engineers in the early stages of their independent research careers.
2. Particle Data Group Workspace – worked with particle physicists to develop interactive visual interfaces that enable improved workflow management, analysis, and publication of research data. Science communities are focused on building globally distributed collaborations and sharing data and resources. These science projects need usable and accessible access to very large amounts of data.
3. Nearby Supernova Factory – architect for collaborative workflow management portal and parallel supernova image search software for largest data volume supernova search in operation.
4. CRA-W board member and Latinas in Computing co-founder – supporting undergraduate, graduate, and K-12 diversity in STEM activities. Member of/contributor to numerous other groups supporting diversity in computing (SC Broader Engagement, Expanding Your Horizons, CAHSI, and others).
5. Reviewer, program committees, editor – A representative list of these activities follows: CHI (ACM Conference on Human-Computer Interaction), IEEE VisWeek (IEEE Conferences on Visualization), CSCW (ACM Conference on Computer Supported Cooperative Work), C&C (Creativity and Cognition), SACNAS (Society for Advancement of Chicanos and Native Americans in Science), Grace Hopper Conference for Women in Computing, US DOE Office of Advanced Scientific Computing Research (DOE ASCR), US DOE Office of Science Innovative and Novel Computational Impact on Theory and Experiment (INCITE).

Canan Bilen-Green, Ph.D.
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A. PROFESSIONAL PREPARATION

Middle East Technical University, Turkey	Statistics	B.S., 1991
Bilkent University, Turkey	Industrial Engineering	M.S., 1994
University of Wyoming, Laramie, Wyoming	Statistics	M.S., 1996
University of Wyoming, Laramie, Wyoming	Statistics	Ph.D., 1998

B. APPOINTMENTS

North Dakota State University

Vice Provost, Faculty Affairs & Equity, 2012 – present.
Interim Chair, Industrial and Manufacturing Engineering, 2012– 2015.
Professor, Industrial and Manufacturing Engineering, 2010 – present.
Associate Professor, Industrial and Manufacturing Engineering, 2006 – 2010.
Assistant Professor, Industrial and Manufacturing Engineering, 1998 –2006.

NASA Wallops Flight Facility

Faculty Research Fellow, Summer 2003 and 2004.

Middle East Technical University

Visiting Professor, Department of Statistics, Summer 2000.

University of Wyoming

Graduate Assistant, September 1994 – August 1998

C. PUBLICATIONS

(i) Up to Five Relevant Publications

1. Anicha, C., **Bilen-Green**, C.Burnett, A., "Advocates and Allies: The Succession of a Good Idea or What's in a Meme? (Dispatch)," *Studies in Social Justice, Vol.* 12(1), 152-164, 2018.
2. Anicha, C., Ray, C., and **Bilen-Green, C**. "Working it Backwards: Student Success through Faculty Professional Development." Disability as Diversity in Higher Education Policies and Practices to Enhance Student Success. E. Kim & K. Aquin. Routledge. 2017.
3. **Bilen-Green**, **C.,** Froelich, K. and Wolf-Hall, C. "Policies and Practices to Avoid Implicit Bias and Level the Playing Field for Women Faculty." Gender and Work: Intersectionality, Resistance, and Identity M. Sternadori and C. M. Prentice. Cambridge Scholars Publisher. 2016.
4. Anicha, C., Burnett, A., **Bilen-Green**, C. "Men Faculty Gender-Equity Advocates: A Qualitative Analysis of Theory and Praxis," *Journal of Men's Studies*, 23, 21-43. 2015.
5. Burnett A., **Bilen-Green**, C., McGeorge, C., and Anicha, C. "Examining the complexities of faculty attrition: an analysis of STEM and Non-STEM faculty who remain and faculty who leave the institution." *The Journal of Women and Minorities in Science and Engineering* 18(1), 1–19, 2012.

(ii) **Up to Five Other Significant Publications** (*from over 40 refereed publications*)

1. Li , X., **Bilen-Green, C**., Farahmand, K., and Langley, L. "A semiparametric method for estimating the progression of cognitive decline in dementia," *IISE Transactions on Healthcare Systems Engineering,* Vol. 8(4), 303-314, 2018.
2. **Bilen, C.,** Khan, A. and Chattinnawat, W." Dual-monitoring scheme for multivariate autocorrelated cascade processes with EWMA and MEWMA charts*," Quality Technology & Quantitative Management, DOI:10.1080/16843703.2016.1208488. 2016.*
3. **Bilen**, **C.**, "Monitoring Autocorrelated Processes with Wavelets," *International Journal of Reliability, Quality, and Safety Engineering,* Vol. 17(2), 133-156, 2010.
4. **Bilen, C.** and Huzurbazar, S., "Wavelet-Based Model-Free Detection of Outliers in Time Series," *Journal of Computational and Graphical Statistics,* Vol. 11(2), 311-327, 2002.
5. Tansel, B.C. and **Bilen**, **C.**, "Move Based Heuristics for the Unidirectional Loop Network Layout Problem," *European Journal of Operational Research*, Vol. 108, 36-48, 1998.

D. SYNERGISTIC ACTIVITIES (Up to Five examples)

1. **Title IX/ADA** Administrator, 2017-present.
2. Director and PI**, ADVANCE FORWARD**, NSF funded Institutional Transformation program and PLAN-D projects, 2008-present.
3. Co-PI and Faculty Participant, **GraSUS**, an NSF GK-12 funded program dedicated to increasing the quality of STEM education in Grades 6-12 through the direct involvement of science, and engineering graduate and undergraduate students and through enhanced professional development of science and mathematics teachers, 2004 –2012.
4. Faculty Advisor, **Society of Women Engineers**, 2001 – 2014.
5. Coordinator**, Outreach Programs** including the Engineering College Expanding Your Horizons workshops to introduce young girls to nontraditional careers, and TechGyrls, an after school program to introduce for 4^{th} – 7^{th} grade girls to engineering technology, 2001 – 2012.

SUMMARY PROPOSAL BUDGET

YEAR 1

ORGANIZATION	FOR NSF USE ONLY		
University of Washington	PROPOSAL NO.	DURATION (months) Proposed	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR	AWARD NO.		
Sheryl Burgstahler			

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Sheryl Burgstahler - PI**	1.00	0.00	0.00	**17,220**	
2. **Cecilia R Aragon - Co-PI**	0.00	0.00	1.00	**18,322**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	1.00	0.00	1.00	**35,542**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**4**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	6.00	0.00	0.00	**35,263**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**4**) UNDERGRADUATE STUDENTS				**2,475**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**73,280**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**21,743**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**95,023**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**7,500**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **9,000**					
3. SUBSISTENCE **10,430**					
4. OTHER **2,080**					
TOTAL NUMBER OF PARTICIPANTS (**86**) TOTAL PARTICIPANT COSTS				**21,510**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**1,500**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**2,000**	
3. CONSULTANT SERVICES				**6,000**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**1,804**	
TOTAL OTHER DIRECT COSTS				**11,304**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**135,337**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Modified Total Direct Cost (Rate: 55.5000, Base: 113827)**					
TOTAL INDIRECT COSTS (F&A)				**63,174**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**198,511**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**198,511**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME	FOR NSF USE ONLY		
Sheryl Burgstahler	INDIRECT COST RATE VERIFICATION		
ORG. REP. NAME*	Date Checked	Date Of Rate Sheet	Initials - ORG
Lars Laing-Peterson			

1 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 2

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **University of Washington**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Sheryl Burgstahler**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Sheryl Burgstahler - PI**	1.00	0.00	0.00	**17,909**	
2. **Cecilia R Aragon - Co-PI**	0.00	0.00	1.00	**19,055**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	1.00	0.00	1.00	**36,964**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**4**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	6.00	0.00	0.00	**36,673**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**4**) UNDERGRADUATE STUDENTS				**2,475**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**76,112**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**22,592**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**98,704**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**7,500**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **18,000**					
3. SUBSISTENCE **16,740**					
4. OTHER **13,040**					
TOTAL NUMBER OF PARTICIPANTS (**222**) TOTAL PARTICIPANT COSTS				**47,780**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**1,500**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**2,000**	
3. CONSULTANT SERVICES				**6,000**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**2,032**	
TOTAL OTHER DIRECT COSTS				**11,532**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**165,516**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Modified Total Direct Cost (Rate: 55.5000, Base: 117736)**					
TOTAL INDIRECT COSTS (F&A)				**65,343**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**230,859**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**230,859**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Sheryl Burgstahler**

ORG. REP. NAME*: **Lars Laing-Peterson**

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 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 3

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **University of Washington**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Sheryl Burgstahler**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Sheryl Burgstahler - PI**	1.00	0.00	0.00	**18,625**	
2. **Cecilia R Aragon - Co-PI**	0.00	0.00	1.00	**19,817**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	1.00	0.00	1.00	**38,442**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**4**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	6.00	0.00	0.00	**38,140**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**4**) UNDERGRADUATE STUDENTS				**2,475**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**79,057**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**23,475**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**102,532**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**7,500**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **11,120**					
TOTAL NUMBER OF PARTICIPANTS (**208**) TOTAL PARTICIPANT COSTS				**11,120**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**1,500**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**2,000**	
3. CONSULTANT SERVICES				**11,000**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**1,500**	
TOTAL OTHER DIRECT COSTS				**16,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**137,152**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Modified Total Direct Cost (Rate: 55.5000, Base: 126033)**					
TOTAL INDIRECT COSTS (F&A)				**69,948**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**207,100**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**207,100**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Sheryl Burgstahler**

ORG. REP. NAME*: **Lars Laing-Peterson**

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 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 4

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PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **University of Washington**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Sheryl Burgstahler**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Sheryl Burgstahler - PI**	1.00	0.00	0.00	**20,609**	
2. **Cecilia R Aragon - Co-PI**	0.00	0.00	1.00	**19,371**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	1.00	0.00	1.00	**39,980**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**4**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	6.00	0.00	0.00	**39,666**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**4**) UNDERGRADUATE STUDENTS				**2,475**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**82,121**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**24,394**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**106,515**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**7,500**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **18,000**					
3. SUBSISTENCE **16,740**					
4. OTHER **13,040**					
TOTAL NUMBER OF PARTICIPANTS (**268**) TOTAL PARTICIPANT COSTS				**47,780**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**1,500**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**2,000**	
3. CONSULTANT SERVICES				**11,000**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**2,032**	
TOTAL OTHER DIRECT COSTS				**16,532**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**178,327**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Modified Total Direct Cost (Rate: 55.5000, Base: 130546)**					
TOTAL INDIRECT COSTS (F&A)				**72,453**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**250,780**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**250,780**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Sheryl Burgstahler**

ORG. REP. NAME*: **Lars Laing-Peterson**

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 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 5

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **University of Washington**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Sheryl Burgstahler**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Sheryl Burgstahler - PI**	1.00	0.00	0.00	**20,145**	
2. **Cecilia R Aragon - Co-PI**	0.00	0.00	1.00	**21,434**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	1.00	0.00	1.00	**41,579**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**4**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	6.00	0.00	0.00	**41,252**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**4**) UNDERGRADUATE STUDENTS				**2,475**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**85,306**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**25,349**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**110,655**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**7,500**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **11,120**					
TOTAL NUMBER OF PARTICIPANTS (**250**) TOTAL PARTICIPANT COSTS				**11,120**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**1,500**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**2,000**	
3. CONSULTANT SERVICES				**6,000**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**1,500**	
TOTAL OTHER DIRECT COSTS				**11,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**140,275**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Modified Total Direct Cost (Rate: 55.5000, Base: 129155)**					
TOTAL INDIRECT COSTS (F&A)				**71,681**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**211,956**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**211,956**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Sheryl Burgstahler**

ORG. REP. NAME*: **Lars Laing-Peterson**

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INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

5 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

2017017

SUMMARY PROPOSAL BUDGET

Cumulative

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **University of Washington**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Sheryl Burgstahler**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Sheryl Burgstahler - PI**	5.00	0.00	0.00	**94,508**	
2. **Cecilia R Aragon - Co-PI**	0.00	0.00	5.00	**97,999**	
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	5.00	0.00	5.00	**192,507**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**20**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	30.00	0.00	0.00	**190,994**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**20**) UNDERGRADUATE STUDENTS				**12,375**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**395,876**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**117,553**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**513,429**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**37,500**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **45,000**					
3. SUBSISTENCE **43,910**					
4. OTHER **50,400**					
TOTAL NUMBER OF PARTICIPANTS (**1,034**) TOTAL PARTICIPANT COSTS				**139,310**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**7,500**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**10,000**	
3. CONSULTANT SERVICES				**40,000**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**8,868**	
TOTAL OTHER DIRECT COSTS				**66,368**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**756,607**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)					
TOTAL INDIRECT COSTS (F&A)				**342,599**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**1,099,206**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**1,099,206**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Sheryl Burgstahler**

ORG. REP. NAME*: **Lars Laing-Peterson**

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

C ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

BUDGET JUSTIFICATION
AccessADVANCE

A. SENIOR PERSONNEL

Dr. Sheryl Burgstahler, PI, Project Director (1 month), who is also the PI and Director on *AccessINCLUDES*, Co-Director of *AccessComputing,* Director of the University of Washington (UW) Accessible Technology Services, which includes the DO-IT Center, and Affiliate Professor in the College of Education. She will oversee the project, support research and evaluation, deliver presentations, and draft articles for publications.
Note: Dr. Burgstahler is professional staff and has permission to readjust her work assignment to allocate up to 80% per year of her work time to grant-funded projects.

Dr. Cecilia Aragon, Co-PI (1 summer month), who is a Professor in the Department of Human Centered Design & Engineering, will serve as Co-PI, providing input and guidance throughout the project.

B. OTHER PERSONNEL

Brianna Blaser, Project Manager (2 months), who has coordinated projects through DO-IT for many years, will manage and coordinate the overall project, maintaining project timelines, directing events (e.g., CBIs and webinars) and online communities, managing budgets and reports, and arranging conference exhibits and presentations.

Kayla Brown, Project Assistant (1.5 months), will coordinate workshops, meetings, CBIs, etc.

Lyla Crawford, Internal Evaluator (1.5 months), will assist with evaluation and research and drafting printed/online materials, under the leadership of the External Evaluator.

Elizabeth Woolner, Publications and Web Content Coordinator (1 month), with a wealth of expertise and experiences in other DO-IT projects, will coordinate the development and dissemination of publications and web content.

Student Support Staff, some with disabilities themselves, will assist with the conferences, evaluation, publications, website, records, and reports. Average $16.50/hour for approx. 150 hours/year.

Note: All salaries include a yearly 4% increase.

C. FRINGE BENEFITS: 23.9% for faculty, 32.1% for professional, and 20.9% for hourly staff.

E. TRAVEL:

Domestic travel for project staff to attend regional/national conferences and CBIs @$1,500 average 3 times a year.

ADVANCE Project Directors' meeting for PI and Co-PI at $1,500 each per year.

F. PARTICIPANT SUPPORT COSTS

1. Stipends

2. Travel

Travel to 1-day CBI. 10 participants @ average of $600 each in year 1.
Lodging for 1-day CBI. 35 participants $184/night for 1 night in year 1.
Travel to 2-day CBI. 30 participants @ average of $600 each in years 2 and 4.
Lodging for 2-day CBI. 30 participants @ $184/night for 2 night in years 2 and 4.

3. Subsistence

Food for 1-day CBI. 35 participants @ $76/day for 1.5 days in year 1.
Food for 2-day CBI. 30 participants @ $76/day for 2.5 days in year 2 and 4.

4. Other

Mini-grants for partners, 2 @ average of $5,000 each in years 2-5.
Assistive technology, sign language interpreters, real-time captioning, and other accommodations for event participants at workshops, meetings, and CBI. $2,080 in year 1, $3,040 in years 2 and 4, and $1,120 in years 3 and 5.

G. OTHER DIRECT COSTS

1. Materials and Supplies

Materials and supplies for project activities. $1,500 per year.

2. Publication/Documentation/Dissemination

Reproduction, packaging, and postage costs for presentations, conferences, and distribution of project products, $2,000 per year.

3. Consultant Services

UW Video will work with project director to create a video @ $5,000 in year 3 and 4.
The UW will hire Dr. Elizabeth Moore, an experienced researcher with the consulting firm Applied Inference, as the external evaluator to work with internal evaluator Lyla Crawford to form the project evaluation team. $75/hour, 80 hours/year.

6. Other

Food for CBI presenters, average of $76/day for 1 day in year 1 and 2 days in years 2 and 4.
Conference registration for staff participating in regional/national conferences 3/year @$500 each.

I. INDIRECT COSTS

Facilities and administration costs calculated at 55.5% of Modified Total Direct Costs (MTDC) per our federally negotiated rate agreement with the Department of Health and Human Services signed 07/21/2017. Total Indirect Cost: $342,600.

SUMMARY PROPOSAL BUDGET

YEAR 1

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **North Dakota State University Fargo**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Canan Bilen-Green**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Canan Bilen-Green - Senior Personnel**	0.20	0.00	0.00	**3,000**	
2.					
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**1**) TOTAL SENIOR PERSONNEL (1 - 6)	0.20	0.00	0.00	**3,000**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**1**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	3.00	0.00	0.00	**13,500**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**16,500**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**2,250**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**18,750**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**1,550**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**0**) TOTAL PARTICIPANT COSTS				**0**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**448**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**448**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**20,748**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **NDSU Indirect Costs (Rate: 45.0000, Base: 20748)**					
TOTAL INDIRECT COSTS (F&A)				**9,337**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**30,085**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**30,085**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Canan Bilen-Green**

ORG. REP. NAME*

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INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

TPI: 8023120

SUMMARY PROPOSAL BUDGET

YEAR 2

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **North Dakota State University Fargo**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Canan Bilen-Green**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Canan Bilen-Green - Senior Personnel**	0.20	0.00	0.00	**3,000**	
2.					
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**1**) TOTAL SENIOR PERSONNEL (1 - 6)	0.20	0.00	0.00	**3,000**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**1**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	3.00	0.00	0.00	**13,500**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**16,500**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**2,250**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**18,750**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**1,550**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**0**) TOTAL PARTICIPANT COSTS				**0**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**400**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**400**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**20,700**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **NDSU Indirect Costs (Rate: 45.0000, Base: 20700)**					
TOTAL INDIRECT COSTS (F&A)				**9,315**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**30,015**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**30,015**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Canan Bilen-Green**

ORG. REP. NAME*

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INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

TPI: 8023120

SUMMARY PROPOSAL BUDGET

YEAR 3

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
North Dakota State University Fargo

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Canan Bilen-Green

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Canan Bilen-Green - Senior Personnel**	0.20	0.00	0.00	**3,000**	
2.					
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**1**) TOTAL SENIOR PERSONNEL (1 - 6)	0.20	0.00	0.00	**3,000**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**1**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	3.00	0.00	0.00	**13,500**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**16,500**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**2,250**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**18,750**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**1,550**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**0**) TOTAL PARTICIPANT COSTS				**0**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**400**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**400**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**20,700**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **NDSU Indirect Costs (Rate: 45.0000, Base: 20700)**					
TOTAL INDIRECT COSTS (F&A)				**9,315**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**30,015**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**30,015**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Canan Bilen-Green

ORG. REP. NAME*

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INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 4

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **North Dakota State University Fargo**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Canan Bilen-Green**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Canan Bilen-Green - Senior Personnel**	0.20	0.00	0.00	**3,000**	
2.					
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**1**) TOTAL SENIOR PERSONNEL (1 - 6)	0.20	0.00	0.00	**3,000**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**1**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	3.00	0.00	0.00	**13,500**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**16,500**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**2,250**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**18,750**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**1,500**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**0**) TOTAL PARTICIPANT COSTS				**0**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**400**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**400**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**20,650**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **NDSU Indirect Costs (Rate: 45.0000, Base: 20650)**					
TOTAL INDIRECT COSTS (F&A)				**9,293**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**29,943**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**29,943**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Canan Bilen-Green**

ORG. REP. NAME*

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INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

TPI: 8023120

SUMMARY PROPOSAL BUDGET

YEAR 5

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **North Dakota State University Fargo**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Canan Bilen-Green**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Canan Bilen-Green - Senior Personnel**	0.20	0.00	0.00	**3,000**	
2.					
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**1**) TOTAL SENIOR PERSONNEL (1 - 6)	0.20	0.00	0.00	**3,000**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**1**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	3.00	0.00	0.00	**13,500**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**16,500**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**2,250**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**18,750**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**1,500**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**0**) TOTAL PARTICIPANT COSTS				**0**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**400**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**400**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**20,650**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **NDSU Indirect Costs (Rate: 45.0000, Base: 20650)**					
TOTAL INDIRECT COSTS (F&A)				**9,293**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**29,943**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**29,943**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Canan Bilen-Green**

ORG. REP. NAME*

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

5 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

TPI: 8023120

SUMMARY PROPOSAL BUDGET

Cumulative

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION: **North Dakota State University Fargo**

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR: **Canan Bilen-Green**

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Canan Bilen-Green - Senior Personnel**	1.00	0.00	0.00	**15,000**	
2.					
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**1**) TOTAL SENIOR PERSONNEL (1 - 6)	1.00	0.00	0.00	**15,000**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**5**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	15.00	0.00	0.00	**67,500**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**82,500**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**11,250**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**93,750**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**7,650**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **0**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**0**) TOTAL PARTICIPANT COSTS				**0**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**2,048**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**0**	
TOTAL OTHER DIRECT COSTS				**2,048**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**103,448**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)					
TOTAL INDIRECT COSTS (F&A)				**46,553**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**150,001**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**150,001**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME: **Canan Bilen-Green**

ORG. REP. NAME*

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

C ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

BUDGET JUSTIFICATION – NORTH DAKOTA STATE UNIVERSITY
Collaborative Research: *Access*ADVANCE

SENIOR PERSONNEL
PI: Canan Bilen-Green, Vice Provost, Faculty and Equity and Hogoboom Professor of Industrial and Manufacturing Engineering. ($3,000/year for Y1-75, 0.2 month per year). Bilen-Green will engage in planning of CBI, engaging in CoP, recruit participants, encourage collaborators to engage, developing products and resources, and refer females with disabilities to online mentoring community.

Other professionals for NDSU:

Cali Anicha, Research Associate, Office of Vice Provost for Faculty and Equity. ($13,500/year for Y1-75, three months per year). One part-time research associate will coordinate and contribute to several project activities including training components, participant recruitment, resource development, data entry, materials publication.

C. FRINGE BENEFITS
Fringe calculated at 30% for faculty/staff salaries, 10% for part-time staff.

E. TRAVEL (All requested travel is domestic).
Travel funds for PI and project staff to attend CBI and ADVANCE PI meetings. Years 1-3: $1,550 per year; Year 4-5: $1,500 per year

G. OTHER DIRECT COSTS
1. Materials & Supplies, Internal recruitment and training materials. Year 1: $448; Years 2-5: $400 per year.

I. INDIRECT COSTS 45% on Total Direct Costs (H)

Current and Pending Support

(See PAPPG Section II.C.2.h for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Sheryl Burgstahler

Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: Engineering Research Center for Sensorimotor Neural Engineering (CSNE)

Source of Support: National Science Foundation
Total Award Amount: $ 36,475,600 Total Award Period Covered: 08/01/11 - 07/31/21
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: 0.00 Sumr: 0.00

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: AccessComputing Third Extension

Source of Support: National Science Foundation
Total Award Amount: $ 4,193,252 Total Award Period Covered: 09/01/15 - 08/31/20
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal: 1.50 Acad: 0.00 Sumr: 0.00

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: Collaborative Research: AccessCSforAll: Including Students with Disabilities in High School Computer Science

Source of Support: National Science Foundation
Total Award Amount: $ 516,471 Total Award Period Covered: 09/01/17 - 08/31/20
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal: 0.50 Acad: 0.00 Sumr: 0.00

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: AccessCyberlearning 2.0

Source of Support: National Science Foundation
Total Award Amount: $ 99,948 Total Award Period Covered: 09/01/18 - 02/29/20
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal: 0.50 Acad: 0.00 Sumr: 0.00

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: DCL: NSF INCLUDES: Accessible INCLUDES National Network (AccessINCLUDES)

Source of Support: National Science Foundation
Total Award Amount: $ 249,966 Total Award Period Covered: 01/01/19 - 12/31/20
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal: 0.50 Acad: 0.00 Summ: 0.00

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

Current and Pending Support

(See PAPPG Section II.C.2.h for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Sheryl Burgstahler

Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: Access to Informal STEM Learning for Participants with Disabilities (AccessISL)

Source of Support: National Science Foundation
Total Award Amount: $ 1,499,706 Total Award Period Covered: 01/01/20 - 12/31/23
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: 0.00 Sumr: 0.00

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: Collaborative Research: AccessADVANCE (current proposal)

Source of Support: National Science Foundation
Total Award Amount: $ 1,099,206 Total Award Period Covered: 09/01/20 - 08/31/25
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: 0.00 Sumr: 0.00

Support: ☐ Current ☐ Pending ☒ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: Collaborative Research: Personalized visual feedback for attention-deficit and hyperactive disorder (ADHD) students in cyberlearning

Source of Support: National Science Foundation
Total Award Amount: $ 449,948 Total Award Period Covered: 07/01/20 - 06/30/23
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal: 0.60 Acad: 0.00 Sumr: 0.00

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Summ:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

Current and Pending Support

(See PAPPG Section II.C.2.h for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Cecilia Aragon	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: Data Science Environment

Source of Support: Gordon and Betty Moore and Alfred P. Sloan Foundations
Total Award Amount: $ 12,600,000 Total Award Period Covered: 01/01/14 - 12/31/20
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.00 Sumr: 1.00

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: NRT-DESE: Data Intensive Research Enabling Clean Technologies (DIRECT)

Source of Support: National Science Foundation
Total Award Amount: $ 3,000,000 Total Award Period Covered: 09/16/16 - 09/15/21
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.00 Sumr: 0.00

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: Coordinated And Shared Transportation (CAST) for Commuting: Reshaping Future Mobility

Source of Support: National Science Foundation
Total Award Amount: $ 1,999,739 Total Award Period Covered: 01/01/20 - 12/31/24
Location of Project: University of Washington
Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.00 Sumr: 0.50

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: Collaborative Research: AccessADVANCE (current proposal)

Source of Support: National Science Foundation
Total Award Amount: $ 1,099,206 Total Award Period Covered: 09/01/20 - 08/31/25
Location of Project: University of Washintong
Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.00 Sumr: 1.00

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Summ:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

Current and Pending Support

(See PAPPG Section II.C.2.h for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Canan Bilen-Green

Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: Engaging Male Colleagues as Advocates and Allies for the Advancement of Women Faculty

Source of Support: NSF, ADVANCE PLAN-D
Total Award Amount: $ 690,638 Total Award Period Covered: 09/15/15 - 08/15/20
Location of Project: NDSU (OSU, RIT, UNT, UW)
Person-Months Per Year Committed to the Project. Cal: 0.10 Acad: 0.00 Sumr: 0.00

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: Collaborative Research: Joining forces: A midwestern partnership of research-intensive institutions for women STEM faculty success

Source of Support: NSF ADVANCE
Total Award Amount: $ 232,039 Total Award Period Covered: 10/01/19 - 09/30/22
Location of Project: NDSU (ISU,WMU, MTU)
Person-Months Per Year Committed to the Project. Cal: 0.20 Acad: 0.00 Sumr: 0.00

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title: AccessADVANCE

Source of Support: NSF, ADVANCE
Total Award Amount: $ 150,000 Total Award Period Covered: 09/01/20 - 09/01/25
Location of Project: NDSU (UW)
Person-Months Per Year Committed to the Project. Cal: 0.20 Acad: 0.00 Sumr: 0.00

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Summ:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

EXISTING FACILITIES AND OTHER RESOURCES
University of Washington (UW)

The proposed project will benefit from existing relationships with organizations and campus programs designed to help individuals, including those traditionally underrepresented in STEM fields, achieve successful outcomes in STEM academics and careers. The following units have existing collaborative relationships with DO-IT and the UW College of Engineering and are readily available to work with staff of a newly funded project.

College of Engineering
The College of Engineering includes ten departments that give students the crucial skills and practical experience they need to succeed in an ever-changing world. Undergraduate enrollment is more than 4,000; last year more than 800 undergraduate degrees were awarded. Student services available for project engagement include academics and advising, diversity programs, student organizations, student competitions, and study abroad. Mentors will be recruited from the College of Engineering and other STEM colleges and departments.
engr.washington.edu/about

ADVANCE Center for Institutional Change
The UW ADVANCE Center for Institutional Change is a campus and national resource for best practices in academic leadership development, cultural change and policy transformation, and increasing the advancement and number of women faculty in STEM fields. Our objective is to create a diverse, thriving campus in which all faculty in science, technology, engineering and mathematics (STEM) receive the proper support, flexibility and recognition to achieve her or his maximum potential. Our campus initiatives include leadership development workshops and consultation for campus leaders and career development resources and informal mentoring programs for STEM faculty.
advance.washington.edu

Diversity & Access
From high school to college graduation, the Office of Diversity & Access helps students achieve their potential and dreams. The path to becoming an engineer is not easy. Students need encouragement and continuous support to succeed in engineering. The challenge is to bring more voices and minds to engineering to reflect the diversity of our community. Economic, cultural, social, educational, and institutional factors, however, continue to discourage women and underrepresented minorities from pursuing engineering education and rewarding careers in this field. We offer opportunities and support through a team of dedicated professionals committed to providing all students with an enriched academic experience.
engr.washington.edu/about/diversity-access

Promoting Equity in Engineering Relationships (P.E.E.R.s)
Promoting Equity in Engineering Relationships (PEERs) is a program for students, by students to improve the University of Washington College of Engineering. PEERs

integrates NSF-funded efforts across the UW in an innovative way to improve the experiences of underrepresented undergraduates in the College of Engineering.
Through a student seminar, peer-led presentations, and student leaders, PEERs engages a cadre of students, professors, and staff to create positive change toward a more inclusive environment in the UW College of Engineering. PEERs focuses on solutions that "fix the system" of bias and stereotype, with a long-term goal of increasing the participation of all underrepresented groups in engineering.
PEERs was a first-round NSF Innovation through Institutional Integration (I3) awardee. NSF's Innovation through Institutional Integration (I^3) endeavor, challenges faculty, administrators, and others in institutions to think strategically about the creative integration of NSF-funded awards towards a whole that exceeds the sum of its parts. The original PEERs grant ended in 2014. The PEERs seminar is now funded by the College of Engineering.
engr.washington.edu/peers/

Disabilities, Opportunities, Internetworking, and Technology (DO-IT) Center
Project staff will have access to office space, conference and meeting rooms, including teleconferencing equipment, computers, software, Internet, fax machines, and phone lines of the DO-IT Center. Through previous activities, Dr. Burgstahler and her staff have direct experience working with high school and college students with disabilities and mentors who have experienced or are currently facing transitions to postsecondary education and careers. As a collaboration of the College of Engineering, UW Technology, and the College of Education, DO-IT brings particular strengths in information technology, instruction, curriculum, and facilities that are accessible to all students. DO-IT maintains extensive web resources that include an online Knowledge Base of more than 500 questions and answers, case studies, and promising practices related to the academic and career success of individuals with disabilities in STEM fields. DO-IT has produced more than 100 publications and designed and coordinated the development of more than 40 professional training videos that feature high school, college, and professional individuals with disabilities and are available in accessible (open-captioned and audio-described) online and DVD formats. All videos, publications, and electronic resources created in previous DO-IT projects are available for use in the proposed project. DO-IT directs the specific projects described below.
uw.edu/doit/

The Alliance for Access to Science, Technology, Engineering, and Mathematics (*AccessSTEM*)
AccessSTEM, directed by DO-IT, originally funded by the National Science Foundation (Research in Disabilities Education Cooperative Agreement #HRD-0227995 and #HRD-0833504), and now supported with other funding sources, serves to increase the participation of individuals with disabilities in STEM fields. The *AccessSTEM* website is a space where K-12 teachers, postsecondary educators, and employers learn to make classroom and employment opportunities in STEM accessible to individuals with disabilities and share promising practices. *AccessSTEM* funds the *AccessSTEM* Longitudinal Transition Study (ALTS), which tracks interventions that lead to the success of participants with disabilities; a current summary of ALTS results is available at https://www.uw.edu/doit/2016-report-accessstemaccesscomputingdo-it-longitudinal-transition-study-alts.
uw.edu/doit/programs/accessstem/overview

AccessCollege
AccessCollege, originally funded by the U.S. Department of Education (Office of Postsecondary Education grant #P333A990042, #P333A020044, #P333A050064) and now supported with alternative funds through the DO-IT Center, promotes the postsecondary education success of students with disabilities through the professional development of faculty nationwide. Useful to the proposed project are its seven comprehensive websites for meeting its goals:

- *The Faculty Room - for faculty and academic administrators.*
- *The Student Services Conference Room - for staff and administrators.*
- *The Employment Office - for employers and career services.*
- *The Student Lounge - for students with disabilities.*
- *The Veterans Center - for veterans with disabilities and those who work with them.*
- *The Board Room - for high-level administrators.*
- *The Center for Universal Design in Education - principles, processes, guidelines, checklists, and promising practices for applying universal design to instruction, student services, technology, and physical spaces.*

uw.edu/doit/programs/accesscollege

RDE Collaborative Dissemination
A rich collection of resources on the RDE Collaborative Dissemination website was originally supported by NSF (grant #HRD-0929006) and is now supported by alternative funds through the DO-IT Center. Included on the website is specific information about past and current projects funded by the Research in Disabilities Education (RDE) program of the National Science Foundation and links to resources they share. The ultimate goal of RDE Collaborative Dissemination Project efforts is to broaden the participation in STEM fields and improve these fields with the talents and perspectives of individuals with disabilities. Resources and partners of this project area are readily available to the proposed project.
uw.edu/doit/RDE/

The Alliance for Access to Computing Careers (*AccessComputing*)
The goal of *AccessComputing* is to increase the participation of people with disabilities in computing, academic, and career fields. It offers workshops for high school and college students with disabilities nationwide to increase their interest and skills in computing. It is cosponsored by DO-IT and the UW Computer Science & Engineering department and funded by the National Science Foundation as part of the Broadening Participation in Computing (BPC) program of the Directorate for Computer and Information Sciences and Engineering (CISE grant #CNS-0540615, -0837508, and -1042260). The UW leader for the proposed project is Co-PI of *AccessComputing* and will draw into the project faculty connections and resources.
uw.edu/accesscomputing/

Access Technology Center
The Access Technology Center on the UW Seattle campus has received national attention as a model for providing computing access to students with disabilities and helping departments make their electronic resources accessible to individuals with disabilities. Directed by the UW leader of the proposed project as part of Accessible Technology Services within UW Information Technology, resources and staff of this Center and other Accessible Technology Services are readily available to project staff.
uw.edu/computing/atl

Human Centered Design & Engineering
The Department of Human Centered Design & Engineering (HCDE) is one of ten departments in the College of Engineering, with Bachelor's, Master's, and Ph.D. degree programs. Its mission is to "research, design, and engineer interactions between humans and technology, putting people first." HCDE research (1) considers the role of communication and technology in human activity; (2) prioritizes the needs, desires, and behaviors of people and communities who interact with technical systems; and (3) addressing the specifics of design by working with interdisciplinary communities of researchers to build innovative technological solutions. hcde.washington.edu

The **Virtual Reality Lab** contains installed components of an HTC Vive and a high-performance desktop. An Oculus Rift is also available for check out. The **Make Lab** contains tools and materials for hard prototyping (drill press, soldering, as well as many other tools and parts) on movable tool benches that can be ported to classrooms, and is available by appointment.

The **Design Lab** includes movable tables and chairs of different sizes and kinds, wall-mounted and movable white boards, and movable carts with an assortment of prototyping supplies. The space is able to accommodate up to 40-person classes and features ceiling-mounted projectors, screens, speakers, and white board walls. The motivation for creating the Design Lab was that much of our work is highly collaborative, with many courses and research efforts employing project-based models for teaching and learning that have our students working in groups. This group work requires a different kind of space than the typical classroom for an effective practice. The work takes many different forms, depending on the specific project or phase of the project. Examples are brainstorming sessions, design meetings, group discussions, prototyping, presentations, and exhibits.

CoMotion
CoMotion is the collaborative hub for expanding the societal impact of the UW community. With partners across the UW and throughout Seattle, CoMotion provides UW researchers with an environment for starting new technology companies. CoMotion's Entrepreneurs in Residence, advisory boards, and mentors work alongside researchers on their startup projects, carrying them into the surrounding business community. CoMotion helps to plan and resource the development of customer relationships and product prototypes. CoMotion is also a national leader in university technology transfer, with expertise in models for distribution, in managing software and digital assets, in IP planning and protection, and in licenses and negotiation. comotion.uw.edu

Library & Information Services Facilities
The University of Washington has an award-winning library system with twenty libraries and more than six million volumes. The Association of Research Libraries (ARL) composite index ranks the University of Washington Libraries 12th among 120 academic research libraries in North America. Over 80 specialized online databases are available free to all members of the University community. The University of Washington Libraries is a depository for publications from the United States federal government, Canada, The United Nations, the European Union,

and the State of Washington. Repository documents include the areas of engineering, patents and trademarks, U.S. Geological Survey Maps, the Census, and Congressional reports.

The Libraries is a network of 25 facilities serving all three University of Washington campuses. The major facilities on the Seattle campus include the Suzzallo and Allen Libraries, Odegaard Undergraduate Library and the Health Sciences Library. In addition, there are 14 subject-oriented branch libraries located near academic departments throughout the Seattle campus and branches in downtown Seattle and on San Juan Island. The UW Bothell and UW Tacoma campus libraries support their respective campuses. Over four million people visit the Libraries each year, with an additional six million using the Libraries via its website.
lib.washington.edu

Disability Studies
The Disability Studies program at the UW is a multi-campus interdisciplinary group of faculty, staff, students, and community members who share an interest in questions relating to society's understanding of disability. The undergraduate Disability Studies Minor and Major provide opportunities for students to develop a strong interdisciplinary foundation in the social, legal, and political framing of disability. Students study the cultural construct of disability, social justice, and disability policy, and the intersections of disability, race, gender, sex, age, class, and other markers of diversity. The project will engage faculty and students from this program in its activities and likely increase interest in this area of study.
depts.washington.edu/disstud/

College of Education
The College of Education offers a variety of courses and programs for pre-service and in-service teachers in a wide range of subject areas and at all levels of education. They also support a computer lab for educational applications. The College of Education is dedicated to making an excellent education a daily reality for every student in every community across the state and beyond. There is a great deal of interest in diversity in this department, in particular how all aspects of diversity, including disability, can be addressed in teacher training. The leader of UW efforts in the proposed project is an affiliate professor in this department and will ensure that faculty interested in relevant topics will be engaged in the proposed project and informed of project efforts and lessons learned.
education.uw.edu/

Center for Sensorimotor Neural Engineering
Intelligent systems and robots seek to sense and move like biological systems, and devices implanted in or interfaced with neural systems attempt to process neural data robustly, safely, and in a functionally meaningful way. Doing so requires a critical ingredient: a novel, neural-inspired approach based on a deep understanding of how biological systems acquire and process information. This is the focus of the Center for Sensorimotor Neural Engineering (CSNE). DO-IT is a partner in this NSF-funded effort (grant #EEC-1028725), coordinating its diversity efforts, including the recruitment and support of people with disabilities in all Center activities. It also ensures that project activities, websites, and curriculum are accessible to individuals with disabilities. Staff of the proposed project will have access to the researchers in CSNE; many teach STEM courses.
csne-erc.org

STEM Staff and Faculty
Sponsorship of most DO-IT projects by the College of Engineering and UW Information Technology, along with DO-IT's many campus-wide STEM activities supported by NSF, provides a firm foundation in STEM fields, a depth of technical expertise, and access to vast STEM resources. Project staff will engage with diversity, STEM, and other programs related to the project goal.

Office of Minority Affairs & Diversity (OMAD)
The Office of Minority Affairs & Diversity Counseling Services is dedicated to supporting academic excellence and undergraduate student achievement. Their staff offer one-to-one advising and assistance to UW students, particularly students from low-income families, students who will be the first in their family to graduate from a four-year college, and underrepresented minority students, including those who have disabilities. Project staff will work with OMAD Counseling Services to recruit students with disabilities into their programs and promote their full inclusion in service delivery.
depts.washington.edu/omadcs/

Center for Engineering, Learning, and Teaching (CELT)
Founded in 1998, CELT is the first center in the nation in a college of engineering to combine a research and faculty development mission. CELT builds the engineering education research base and grounds its work with engineering faculty as it addresses the teaching and learning requirements of a dynamic profession. It focuses on two synergistic activities: research on engineering education and improving engineering teaching through instructional development. It promotes teaching effectiveness in engineering classrooms and provides a model for effecting change in colleges of engineering nationwide. CELT has the lead role in the administration and leadership of the Center for the Advancement of Engineering Education (CAEE). Begun in 2003, CAEE is a multi-institution, multi-method research center funded by the National Science Foundation. CAEE conducts research into undergraduate engineering learning, faculty teaching, the use of portfolios in preparing graduate students for teaching careers, and building capacity in engineering education research. CELT and CAEE findings, especially regarding how to effect change, will be useful to project transformation efforts.
depts.washington.edu/celtweb/

Washington Mathematics, Engineering, Science Achievement (MESA)
MESA serves to increase the numbers of African Americans, Hispanic Americans, Native Americans, and women in mathematics, engineering, and science careers. MESA provides enriching opportunities in mathematics, engineering, and science for underrepresented students in precollege and two-year college activities through the use of exemplary materials and instructional approaches and is a catalyst and model for educational excellence and equity. This is accomplished through partnerships with school districts, community organizations, higher education, industry, and government. Washington MESA is housed at the UW. It already collaborates with DO-IT on several projects focused on promoting the participation of students with disabilities who are female or racial/ethnic minorities in STEM; MESA staff will bring to the new project both the STEM high school and community college perspective.
washingtonmesa.org

Disability Resources for Students (DRS)
A unit in the Division of Student Life, provides campus-wide academic accommodations to students with disabilities. Services offered by DRS include pre-admission advising and referral, intake and needs assessment, priority registration, auxiliary aids, consultation and advocacy, referrals, publications, and adaptive computer resources. Staff members assist students in becoming independent, responsible, and productive members of the community. DRS staff members are currently engaged in DO-IT programs and work closely with the Access Technology Center. Project staff will make collaborators aware of their services as they focus on the full inclusion of students with disabilities in their program offerings. Project staff will also engage with personnel of other relevant service areas that are part of Student Life. For example, in the **Counseling Center** psychologists and mental health counselors provide counseling, assessment, and crisis intervention services to UW students. They offer a broad range of interests, approaches, backgrounds, and perspectives. The Center offers both group and individual counseling to help students sort through career-related issues. Students may use career-counseling sessions to discuss values, interests, abilities, and other concerns related to career decision-making. Implementation of the proposed project will engage counselors from the Counseling Center around the topic of computing careers and universal design of services. The UW **Career Center** works to enhance the career success of students who are completing postsecondary educational programs. The Center provides career counseling, job search strategies, assistance with resume writing and interviewing skills, job placements, and referrals. Project staff will collaborate with Career Center staff to make their programs more accessible and welcoming to students and veterans with disabilities, with a focus on computing careers. washington.edu/studentlife

Associations of UW Students with Disabilities
The Associated Students of the University of Washington Student Disability Commission was established to create communities around experiences of individuals with disabilities and their allies, providing programming, resources, and a safe accessible space. The Disability Advocacy Student Alliance (DASA) is a student group facilitated for and by UW students with disabilities. They aim to represent student interests while working with allied student groups, the UW administration, and the off-campus community. Project staff have worked with these groups as activity co-sponsors and collaborated on special projects that utilize the unique talents and perspectives of the student members. In the newly funded project, staff and student interns in the A-Team will work with members of these student groups on campus-wide activities to promote the social model of disability, universal design, and the full inclusion of students with disabilities in computing fields and the UW community in general.

The Center for Teaching and Learning
The Center for Teaching and Learning (CTL) promotes student learning by supporting and strengthening the UW teaching community. The Center works with individuals, departments, and communities of practice, as well as in collaboration with campus partners, to share knowledge of best practices and evidence-based research on teaching, learning, and mentoring. The CTL is committed to collaboration, responsiveness to change, diversity pedagogies, technologies that advance teaching and learning, and sustainable models. It fosters a visible, active, cohesive network of people from across the university focused on and promoting an

institutional teaching culture. Project staff will take advantage of the unique positioning of the CTL to collaborate on activities that reach UW STEM educators.
washington.edu/teaching/

North Dakota State University: Facilities, Equipment, and Other Resources

Computers
NDSU has computers (Desktop PCs and laptops with necessary software to support project activities) for use by project personnel. Laptops available for external evaluator and external board use (and others when the annual meeting is held at NDSU). Internet access and capability for Skype communication are also available.

Office
Spaces (FORWARD Center) created as part of ADVANCE IT will be available to support this work. The FORWARD Center includes computers, telephones, internet access, and printers. NDSU has meeting spaces to support project activities.

Non-budgeted Personnel
Mark Coppin, NDSU Disability Services Director. One professional staff will provide support for capacity building and training components of the project.

Data Management Plan

This document summarizes how the *AccessADVANCE* project conforms to the NSF policy on dissemination and sharing of research results. The project will encourage and facilitate sharing with other researchers, at no more than incremental cost and within a reasonable time, the materials created in the course of work under this NSF grant. Project staff will publish and disseminate materials promptly, continuing dissemination after the project has been completed, meeting NSF expectations and following the rules of the State of Washington and University of Washington (UW). Project PI Sheryl Burgstahler will take responsibility for adhering to the Data Management Plan, with staff members Terrill Thompson ensuring that HTML/XHTML and accessibility standards are followed and Susie Hawkey, DO-IT Operations Manager, will ensure that document format and writing style standards are followed.

Project Data/Materials

The following project data and materials may be produced in this project:

- **Website content**, including general information pages and navigation.
- **UW publications,** formatted for web access and printing.
- **Knowledge Base articles**, searchable from www.uw.edu/doit/knowledge-base
- **Results of activity evaluation surveys**, qualitative and quantitative data collected from participants in project activities.
- **Articles**, published in non-UW journals and newsletters.

Standards for Accessibility to People with Disabilities, Writing, and Format

Online publications and web pages will be available in an accessible, text-based format that complies with HTML/XHTML standards. All project products will be designed so that they are accessible to individuals with disabilities, including individuals who are blind and using screen reader technology, those who are deaf, and those who are unable to use a standard keyboard. The project video will be captioned and audio-described. Project staff will follow the official UW IT accessibility policy and guidelines presented at http://www.uw.edu/accessibility and will also comply with the Section 508 IT accessibility standards of the U.S. government.

Knowledge Base articles and other written materials will adhere to the writing standards published in the *Chicago Manual of Style*, Seventeenth Edition (2017) and the reference standards published in the *Publication Manual of the American Psychological Association,* Sixth Edition (2009). Journal articles will follow standards adopted by the specific journal.

Policies for Access and Sharing

Once publications are finalized they will be promptly placed on the public project website for the *AccessADVANCE* project linked from www.uw.edu/doit/. Policies for access and sharing include the following:

- **Privacy, confidentiality, security**. The privacy of individuals who submit surveys or are interviewed as part of the project evaluation will be protected. Input will be confidential and project staff will not reveal identities in reports. All project files will be kept in a secure location, with names of responders to evaluation instruments removed from the documents.
- **Intellectual property**. The copyright for journal articles will reside with the journal, if required by that publication. The copyright for other products created in this project will reside with the UW. The following statement will appear on project products: "Copyright © 201_, University of Washington. Permission is granted to copy these materials for educational, noncommercial purposes provided the source is acknowledged."
- **Credit to funding source**. The following statement or similar wording will appear on project products: "This material is based upon work supported by the National Science Foundation under the *AccessADVANCE* project (Grant #xxx-_____). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation."
- **Re-use and re-distribution**. Journal articles will be re-distributed according to guidelines in the *Publication Manual of the American Psychological Association*, Sixth Edition and the journal itself. The following statement will appear on project products copyrighted by the UW: "Permission is granted to copy these materials for educational, noncommercial purposes provided the source is acknowledged." For other uses, individuals will need to seek permission from the project PI or other appropriate representative from the DO-IT Center or UW. Products may be viewed, downloaded, and printed from the web. Videos in DVD format, once the project period has ended, will be available for a small fee that covers duplication, mailing, and processing expenses.
- **Production of derivatives**. For journal articles where the journal has the copyright, permission to create a derivative work will be sought from the publisher. An individual who wishes to create a derivative work from other project products will be directed to reference materials used in the derivative work according to the standards of the *Publication Manual of the American Psychological Association*, Sixth Edition. When a great deal of the work is derived from a project product, as indicated in this manual, this will require written permission from the project PI or other appropriate representative from the UW.
- **Unpublished data**. Qualitative and quantitative data collected from participants in project activities will be made available by special request in original or summary form with all content that identifies individual participants redacted.

Archiving Materials for Preservation and Access

Project staff will follow the retention policies established by the UW with respect to project records and products. After project funding has ended, the UW's DO-IT Center, will continue to maintain the web-based materials on its website, which is supported by ongoing state funding.

Elizabeth J. Moore, Ph.D.

Professional Preparation

Beloit College, Beloit, WI	Classical Philology	BA, 1977
University of Washington, Seattle, WA	Physiological Psychology	Ph.D., 1994

Appointments

Applied Inference *Proprietor, founded 1987*

University of Washington

- 2004-2008, *Office of Educational Assessment, Research Scientist, Program Evaluator*
- 1999-2005 *School of Social Work, HIV/AIDS Project Development and Evaluation Unit, Director of Evaluation*
- 1996-1999 *Alcohol and Drug Abuse Institute, Research Consultant*

YouthCare, *Statistician, Research Director*, *1989-1996*

University of Washington

- 1990-1993 *Statistician/Database Developer*
- 1988-1989 *Program evaluator*
- 1984-1989 *Senior consultant on experimental design, statistical analysis, interpretation of statistical test results*
- 1981-1984 *Research Assistant*

Products

i1. Burgstahler S, Moore E, Crawford L (2011), *Tracking the effectiveness of DO-IT interventions: New longitudinal data on students with disabilities.* Closing the Gap, 30(3), 14-16

i2. Burgstahler S and Moore E. (2009), *Making Student Services Welcoming and Accessible Through Accommodations and Universal Design.* Journal of Postsecondary Education and Disability, 21(3), 151-174

i3. Moore, E (2018) *Health Workforce for the Future Local Evaluation Data Snapshot,* Presented to the Workforce Development Council of Seattle/King County

i4. Moore E (2008) *Washington State Learning Disability Quality Initiative: Evaluation and Summary of Recommendations,* Presented to the State Board for Community and Technical Colleges, Olympia

ii1. Moore, E and Gordon, A (2013), *Research Toolkit for Program Evaluation and Needs Assessments Summary of Best Practices,* Presented to the Environmental Justice and Service Equity Division at the Seattle Public Utilities, and the Local Hazardous Waste Management Program of King County, soon available there.

ii2. Moore, E (2019) *Teachers in Montana Strengthening Continuity of Rural Education in Biotechnology (TeaM SCoRE), Flathead Valley Community College Report of the Year 3 Evaluation of the NSF-ATE Biotechnology Education Program,* Presented to Dr. Ruth Wrightsman, Flathead Valley Community College

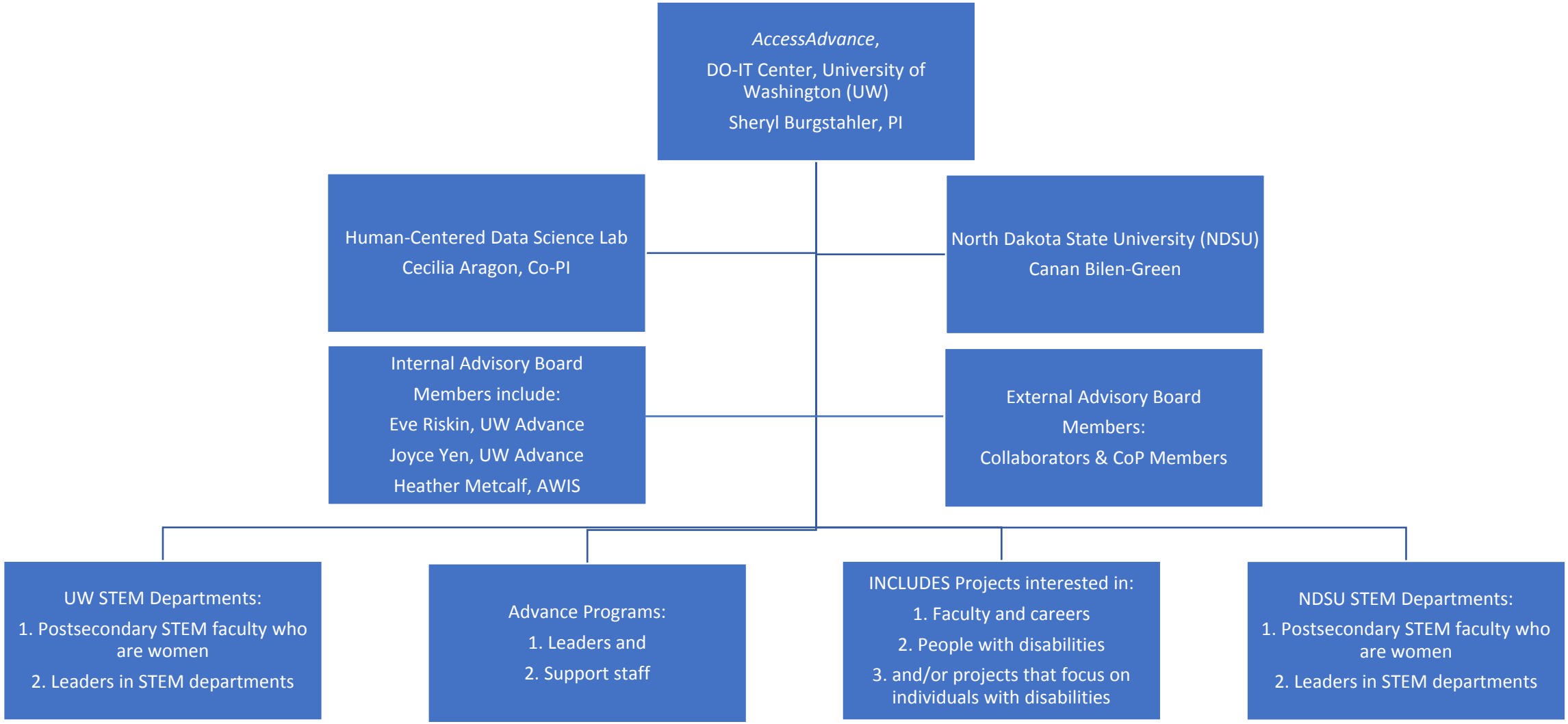
ii3. Moore E (2007), *Renton Technical College; Achieve the Dream Quantitative Findings,* Presented to ATD Committee, Renton Technical College, Renton

ii4. Moore E, Armsden G, Gogerty P (1998), *A Twelve-Year Follow-Up Study of Maltreated and At-Risk Children Who Received Early Therapeutic Childcare,* Child Maltreatment, 3, 3-16

ii5. Giovengo M, Moore E, Young G (1998), *Screening and Assessment Results of the Learning Disabilities Initiative: Identification of Individuals with Learning Disabilities in the Job Opportunities and Basic Skills Program*. In S.A. Vogel & S. Reder (Eds.), Learning Disabilities, Literacy and Adult Education, (179-194). Baltimore, MD: Paul H. Brookes Publishing Co.

Synergistic Activities

1. As the evaluator of many different types of projects, I have, and take advantage of, many opportunities for cross-pollination among projects, for example, raising and referring accessibility of websites and PDF documents with other client organizations.
2. Created a short screening (now known as "the 13 question screen") to identify those at risk for learning disabilities, now widely used at community colleges throughout Washington and beyond.
3. Created many analytic databases from diverse existing and complex sources to examine impact of interventions on outcomes, and associations among participant factors, interventions, and outcomes.
4. Many of my projects are focused on broadening participation of underrepresented groups in everything, especially STEM and/or healthcare postsecondary education and careers. Includes projects focused those with disabilities, low income, underrepresented minorities, immigrant/refugees, seniors.


AccessAdvance,
DO-IT Center, University of Washington (UW)
Sheryl Burgstahler, PI
Human-Centered Data Science Lab
Cecilia Aragon, Co-PI
North Dakota State University (NDSU)
Canan Bilen-Green
Internal Advisory Board
Members include:
Eve Riskin, UW Advance
Joyce Yen, UW Advance
Heather Metcalf, AWIS
External Advisory Board
Members:
Collaborators & CoP Members
UW STEM Departments:
1. Postsecondary STEM faculty who are women
2. Leaders in STEM departments
Advance Programs:
1. Leaders and
2. Support staff
INCLUDES Projects interested in:
1. Faculty and careers
2. People with disabilities
3. and/or projects that focus on individuals with disabilities
NDSU STEM Departments:
1. Postsecondary STEM faculty who are women
2. Leaders in STEM departments

AWIS
ASSOCIATION FOR WOMEN IN SCIENCE

January 7, 2020

Dear NSF Review Committee:

If the proposal submitted by Dr. Sheryl Burgstahler entitled, "Collaborative Research: AccessADVANCE" is selected for funding by NSF, it is my intent to participate as member of the internal steering committee, providing feedback on implementation, resolving organizational issues, and ensuring that activities and products meet the project goals.

I also plan to participate in other aspects of the project including:

- engaging in the project online community of practice;
- participating in a Capacity-Building Institute workshop;
- working to make project and institutional procedures for recruitment and advancement more inclusive of women with disabilities, with a focus on systemic change to ensure project impact once NSF funding has ended;
- providing connections to other stakeholders who might be interested in engagement, training, resources, and information available through *AccessADVANCE*;
- referring women with disabilities who are pursuing STEM academic careers to the mentoring community;
- suggesting topics to address in the *AccessADVANCE* Knowledge Base;
- disseminating project materials through the ARC Network communications channels;
- promoting the collection of disability status data in climate surveys and elsewhere whenever gender and minority status is collected;
- participating in periodic online meetings focused on topics of interest to the group (e.g., universal design principles/guidelines, data collection options regarding disability status); and
- considering applying for a mini grant to support activities aimed at creating systemic change within our organization related to increasing the participation of women with disabilities in STEM careers.

Best regards,

Heather Metcalf, PhD
Chief Research Officer, AWIS

1667 "k" Street, NW • Washington, DC 20006 • Tel: 703.894.4490
Email: awis@awis.org • www.awis.org • Twitter: @AWISnational

NSF INCLUDES Coordination Hub

January 9, 2020

To Whom It May Concern:

If the proposal submitted by Dr. Sheryl Burgstahler entitled **Collaborative Research: AccessADVANCE** is selected for funding by NSF, it is the NSF INCLUDES Coordination Hub's intent to participate as a collaborative partner providing feedback on implementation and ensuring that activities and products meet the project goals to the steering committee.

We also plan to participate in other aspects of the project including:

- promoting the *AccessADVANCE* project online community of practice and providing this community use of and access to the NSF INCLUDES Network online space;
- providing connections to other stakeholders who might be interested in engagement, training, resources, and information available through *AccessADVANCE*;
- suggesting topics to address in the *AccessADVANCE* Knowledge Base;
- disseminating *AccessADVANCE* materials and products to the INCLUDES Network
- participating in bimonthly online meetings focused on topics of interest to the group (e.g., data collection options regarding disability status and student success, shared measurement in collaborative data collection environments)

As the NSF INCLUDES Coordination Hub, we are dedicated to all activities that are focused on increasing the participation of underrepresented groups in STEM and enthusiastically look forward to supporting all grantees and network members in their pursuits to broaden participation in STEM.

Sincerely,

Timothy S. Podkul

Timothy Podkul, PhD.

Director, NSF INCLUDES Coordination Hub

UNIVERSITY of WASHINGTON
COLLEGE OF ENGINEERING
Diversity & Access

January 8, 2020

To Whom It May Concern:

If the proposal submitted by Dr. Sheryl Burgstahler entitled Collaborative Research: AccessADVANCE is selected for funding by NSF, it is our intent to participate as members of the internal steering committee, providing feedback on implementation, resolving organizational issues, and ensuring that activities and products meet the project goals.

We will also add disability resources to the ADVANCE-funded LEAD-it Yourself! Toolkit.

Sincerely,

Eve Riskin, Ph.D.
Professor of Electrical & Computer Engineering
Faculty Director, UW ADVANCE
Associate Dean of Diversity and Access
College of Engineering

Joyce W. Yen, Ph.D.
Director
ADVANCE Center for Institutional Change

Box 352180 / 301 Loew Hall, University of Washington, Seattle, WA 98195-2180

206.543.1770 fax 206.616.8554 eadc@u.washington.edu engr.washington.edu/eadc

PAUL G. ALLEN SCHOOL
OF COMPUTER SCIENCE & ENGINEERING

Jan 9, 2020

To Whom It May Concern,

If the proposal submitted by Dr. Sheryl Burgstahler entitled Collaborative Research: AccessADVANCE is selected for funding by NSF, it is my intent to participate as a Collaborator by

- engaging in the project online community of practice;
- participating in a capacity-building institute workshop;
- working to make project and institutional procedures for recruitment and advancement more inclusive of women with disabilities, with a focus on systemic change to ensure project impact once NSF funding has ended;
- providing connections to other stakeholders who might be interested in engagement, training, resources, and information available through *AccessADVANCE*;
- referring women with disabilities who are pursuing STEM academic careers to the community;
- suggesting topics to address in the *AccessADVANCE* Knowledge Base;
- disseminating project materials;
- promoting the collection of disability status data in climate surveys and elsewhere whenever gender and minority status is collected;
- participating in online meetings focused on topics of interest to the group (e.g., universal design principles/guidelines, data collection options regarding disability status); and/or
- applying for a minigrant to support activities aimed at creating systemic change within our organization related to increasing the participation of women with disabilities in STEM careers.

My work focuses on assistive technologies for access, health, and wellness. My overall focus is to tackle the technical challenges that arise for everyday individuals and communities when solving real-world problems. I have led accessibility efforts within SIGCHI and work directly in diversity and inclusion within the University of

Jennifer Mankoff
Ladner Professor of Computer Science & Engineering
3800 E Stevens Way NE| Seattle, WA 98195
jmankoff@acm.org | http://make4all.org

Washington. I plan on bringing a wealth of knowledge in these backgrounds to this project, our meetings, and the capacity-building institutes.

I also identify as disabled and manage an invisible chronic illness. I am happy to share my knowledge and experiences of navigating medical and social barriers in academia, as well as providing mentorship.

Sincerely,

Jennifer Mankoff
Richard E. Ladner Endowed Professor and Associate Director for Diversity and Inclusion
Please feel free to contact me if you have any questions. Sincerely,

Jennifer Mankoff
Richard E. Ladner Professor
Allen School of Computer Science & Engineering
University of Washington
jmankoff@acm.org | make4a11.org

[About the recommender: I am a full Professor in the Allen School of Computer Science and Engineering at the University of Washington. My graduate degree is from Georgia Tech and I spent three years as an Assistant Professor in the EECS department at UC Berkeley, and twelve years in the HCI Institute at Carnegie Mellon before coming to the University of Washington. My research area is Human Computer Interaction, with a focus on improving inclusion in and accessibility of our digital future. One of our primary application domains is the production and delivery of 3D printed assistive technology. Other application areas include wellness, sustainability, and diversity. Thus, my evaluation is based on familiarity with many students and faculty at top ranked schools in HCI and Computer Science, and my familiarity with the best research being done in my community at large.]

THE GEORGE WASHINGTON UNIVERSITY
WASHINC

School of Engineering & Applied Science
Department of Computer Science
Washington, DC 20052
t 202-994-7181
cs@gwu.edu
www.cs.gwu.edu

January 7, 2020

Brianna Blaser, Ph.D.
Counselor/Coordinator, DO-IT
University of Washington
4545 15th Ave NE, Suite 100 | Seattle, WA 98105

Dear Dr. Blaser

Thank you for letting me know about the proposal submitted by Dr. Sheryl Burgstahler entitled Collaborative Research: Access ADVANCE. As the Director of our new Center for Women in Engineering, we are dedicated to improving the opportunities for all women in engineering. If the proposal is selected for funding by NSF, it is my intent to participate as a Collaborator by

- engaging in the project online community of practice;
- participating in a Capacity-Building Institute workshop;
- working to make project and institutional procedures for recruitment and advancement more inclusive of women with disabilities, with a focus on systemic change to ensure project impact once NSF funding has ended;
- providing connections to other stakeholders who might be interested in engagement, training, resources, and information available through Access ADVANCE;
- referring women with disabilities who are pursuing STEM academic careers to the mentoring community;
- suggesting topics to address in the Access ADVANCE Knowledge Base;
- disseminating project materials;
- promoting the collection of disability status data in climate surveys and elsewhere whenever gender and minority status is collected;
- participating, when possible, in bimonthly online meetings focused on topics of interest to the group (e.g., universal design principles/guidelines, data collection options regarding disability status); and/or
- considering applying for a mini-grant to support activities aimed at creating systemic change within our organization related to increasing the participation of women with disabilities in STEM careers.

Please add language as appropriate about your interest in or commitment to the project implementation, evaluation, and/or sustainability.

Should you require additional information, please contact me at sheller@gwu.edu

Sincerely yours

Rachelle Heller

Rachelle S. Heller, PhD
Professor Emeritus, Computer Science
Director, Center for Women in Engineering (womenengineers.seas.gwu.edu)

1/7/2020

If the proposal submitted by Dr. Sheryl Burgstahler entitled Collaborative Research: AccessADVANCE is selected for funding by NSF, it is my intent to participate as a Collaborator by

- engaging in the project online community of practice;
- participating in a Capacity-Building Institute workshop;
- working to make project and institutional procedures for recruitment and advancement more inclusive of women with disabilities, with a focus on systemic change to ensure project impact once NSF funding has ended;
- providing connections to other stakeholders who might be interested in engagement, training, resources, and information available through *AccessADVANCE*;
- referring women with disabilities who are pursuing STEM academic careers to the mentoring community;
- suggesting topics to address in the *AccessADVANCE* Knowledge Base;
- disseminating project materials;
- promoting the collection of disability status data in climate surveys and elsewhere whenever gender and minority status is collected;
- participating in bimonthly online meetings focused on topics of interest to the group (e.g., universal design principles/guidelines, data collection options regarding disability status); and/or
- considering applying for a mini-grant to support activities aimed at creating systemic change within our organization related to increasing the participation of women with disabilities in STEM careers.

Sincerely,

Dr. Anita Marshall
University of Florida
Department of Geological Sciences

Laura Kramer, Ph.D.
7170 Woodmont Avenue, Apt. PH07
301.654.4254 (land)
973.229.1744 (cell)
lkramerphd@gmail.com

January 6, 2020

To Whom It May Concern:

If the proposal submitted by Dr. Sheryl Burgstahler entitled Collaborative Research: AccessADVANCE is selected for funding by NSF, it is my intent to participate as a Collaborator by:

- engaging in the project online community of practice;
- participating in a Capacity-Building Institute workshop;
- working to make project and institutional procedures for recruitment and advancement more inclusive of women with disabilities, with a focus on systemic change to ensure project impact once NSF funding has ended;
- providing connections to other stakeholders who might be interested in engagement, training, resources, and information available through *AccessADVANCE*;
- disseminating project materials;
- promoting the collection of disability status data in climate surveys and elsewhere whenever gender and minority status is collected; and
- participating in project evaluation.

Sincerely,

Laura Kramer
Professor Emerita
Department of Sociology
Montclair State University

Claire Horner-Devine, PhD
University of Washington
Counterapace Consulting

January 8, 2020

Dear Members of the Review Panel:

If the proposal submitted by Dr. Sheryl Burgstahler entitled Collaborative Research: AccessADVANCE is selected for funding by NSF, I commit to participate as a Collaborator by

- engaging in the project online community of practice;
- participating in a Capacity-Building Institute workshop; promoting the collection of disability status data in climate surveys and elsewhere whenever gender and minority status is collected;
- providing connections to other stakeholders who might be interested in engagement, training, resources, and information available through *AccessADVANCE*; and
- referring women with disabilities who are pursuing STEM academic careers to the mentoring community.

I am also interested in potential participation in the following manner as my time commitment allows:

- working to make project and institutional procedures for recruitment and advancement more inclusive of women with disabilities, with a focus on systemic change to ensure project impact once NSF funding has ended;
- suggesting topics to address in the *AccessADVANCE* Knowledge Base;
- disseminating project materials;
- participating in bimonthly online meetings focused on topics of interest to the group (e.g., universal design principles/guidelines, data collection options regarding disability status); and/or
- considering applying for a minigrant to support activities aimed at creating systemic change within our organization related to increasing the participation of women with disabilities in STEM careers.

I am excited about the proposed work and the focus on creating communities and connections. I hope to bring my experience working in the design and facilitation of professional development programs for early career STEM faculty from groups underrepresented in their fields. My BRAINS (www.BRAINS.washington.edu) program is most directly related to the work proposed here as our BRAINS program participants are early career neuroscientists who identify as members of underrepresented racial and ethnic groups in STEM and/or as researchers with a disability.

Sincerely,

Dr. Claire Horner-Devine
mchd@uw.edu

LABORATORY OF GENETICS
UNIVERSITY OF WISCONSIN—MADISON
College of Agriculture and Life Sciences School of Medicine and Public Health
425-G Henry Mall
Madison, WI 53706-1580
608/262-1069

January 7th, 2020

Dear Brianna,

I'm happy to participate in the AccessADVANCE activities to increate the participation and advancement of individuals who identify as women with disabilities in STEM careers.

I have Ehlers Danlos Syndrome and dyslexia, which affects my mobility and ways in which I learn and write. I have been in a wheelchair and scooter several times and understand the challenges faced at scientific conferences and in laboratories.

Happy to help be a part of this project that is very dear to my heart.

Sincerely,

Professor of Genetics
Affiliate Faculty Life Sciences Communication
Affiliate Faculty UW-Madison Arts Institute
2426 Genetics
Madison, WI 53706
608-262-1593
skop@wisc.edu
http://skoplab.weebly.com

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Geological Sciences
253 Science Hall I
Ames, Iowa 50011-3212
515 294-4477
FAX 515 294-6049

To: National Science Foundation ADVANCE Program

From: Dr. Cinzia Cervato, Morrill Professor of Geological & Atmospheric Sciences

Re: Collaborative Research Proposal: AccessADVANCE

January 7, 2020

Dear colleagues:

If the proposal submitted by Dr. Sheryl Burgstahler entitled Collaborative Research: AccessADVANCE is selected for funding by NSF, it is my intent to participate as a Collaborator by:

- engaging in the project online community of practice;
- participating in a Capacity-Building Institute workshop;
- working to make project and institutional procedures for recruitment and advancement more inclusive of women with disabilities, with a focus on systemic change to ensure project impact once NSF funding has ended;
- providing connections to other stakeholders who might be interested in engagement, training, resources, and information available through *AccessADVANCE*;
- referring women with disabilities who are pursuing STEM academic careers to the mentoring community;
- suggesting topics to address in the *AccessADVANCE* Knowledge Base;
- disseminating project materials;
- promoting the collection of disability status data in climate surveys and elsewhere whenever gender and minority status is collected;
- participating in bimonthly online meetings focused on topics of interest to the group (e.g., universal design principles/guidelines, data collection options regarding disability status); and/or
- considering applying for a minigrant to support activities aimed at creating systemic change within our organization related to increasing the participation of women with disabilities in STEM careers.

As the lead PI of a recently funded ADVANCE Partnership grant, I am fully committed to supporting and promoting women in STEM careers, and would be happy to contribute my personal experience of a woman faculty with disabilities to the implementation and success of this project.

University of Massachusetts Amherst

College of Social & Behavioral Sciences
Department of Sociology

January 7, 2020

To Whom It May Concern:

If the proposal submitted by Dr. Sheryl Burgstahler entitled Collaborative Research: AccessADVANCE is selected for funding by NSF, it is my intent to participate as a Collaborator by

- engaging in the project online community of practice;
- working to make project and institutional procedures for recruitment and advancement more inclusive of women with disabilities, with a focus on systemic change to ensure project impact once NSF funding has ended;
- providing connections to other stakeholders who might be interested in engagement, training, resources, and information available through *AccessADVANCE*;
- referring women with disabilities who are pursuing STEM academic careers to the mentoring community;
- suggesting topics to address in the *AccessADVANCE* Knowledge Base;
- disseminating project materials;
- promoting the collection of disability status data in climate surveys and elsewhere whenever gender and minority status is collected;
- participating in bimonthly online meetings focused on topics of interest to the group (e.g., universal design principles/guidelines, data collection options regarding disability status)

As the PI on an ADVANCE-IT grant, and Team Leader on another ADVANCE grant, I am deeply committed to the work of ADVANCE more broadly. As a disabled woman of color whose work focuses on intersectionality, I am particularly delighted to see attention paid to disability more broadly.

Sincerely,

Joya Misra
ADVANCE-IT PI, Director of ADVANCE Programming
Professor of Sociology and Public Policy
Director, Institute for Social Science Research
Vice President, American Sociological Association

Santa Clara University

January 7, 2020

To Whom It May Concern:

If the proposal submitted by Dr. Sheryl Burgstahler entitled Collaborative Research: AccessADVANCE is selected for funding by NSF, it is my intent to participate as a Collaborator by

- participating in a Capacity-Building Institute workshop;
- working to make project and institutional procedures for recruitment and advancement more inclusive of women with disabilities, with a focus on systemic change to ensure project impact once NSF funding has ended;
- providing connections to other stakeholders who might be interested in engagement, training, resources, and information available through *AccessADVANCE*;
- referring women with disabilities who are pursuing STEM academic careers to the mentoring community;
- suggesting topics to address in the *AccessADVANCE* Knowledge Base;
- disseminating project materials;
- promoting the collection of disability status data in climate surveys and elsewhere whenever gender and minority status is collected;
- participating in bimonthly online meetings focused on topics of interest to the group (e.g., universal design principles/guidelines, data collection options regarding disability status); and/or
- considering applying for a minigrant to support activities aimed at creating systemic change within our organization related to increasing the participation of women with disabilities in STEM careers.

I am very committed to the success and sustainability of the *AccessADVANCE* project. I will contribute my own knowledge and experience as an early-career woman faculty with a physical disability in sociology. My undergraduate degree is in biology, providing me yet another prospective on the topic of women with disabilities in STEM careers. I have ideas for recommendations on policies and practices based on my own transition from graduate school to the professoriate this year.

Furthermore, part of my research program is around gender inequality in STEM careers. Specifically, I study who gets credit for the creation of new knowledge. My two papers on the subject have looked at gender inequalities in first- and sole-authored papers and self-citations by women. I will contribute related expertise to the development of the *AccessADVANCE* project materials.
Sincerely,

Molly M. King

Molly M. King, Ph.D.
Assistant Professor

Department of Sociology
500 El Camino Real, Santa Clara, California 95053-0261
408.551.3115 | mmking@scu.edu | www.scu.edu/cas/sociology

Applied Inference

1618 N 170
Shoreline, WA 98133
tel: 206-533-0231
cell: 206-356-6798

evaluation
quantitative and qualitative research
database development
system design & support

...making data talk since 1987

January 5, 2020

Sheryl Burgstahler, Ph.D.
Director, Accessible Technology & DO-IT, UW Technology Services
Cecilia Aragon, Ph.D.
Professor, Human-Centered Design & Engineering,
Director, Human-Centered Data Science Lab
University of Washington
Seattle, WA 98195
Canan Bilen-Green
Vice Provost for Faculty and Equity
North Dakota State University
Fargo, ND 58102

Dear Sheryl, Cecilia, and Canan,
I look forward to serving as external evaluator for the proposed NSF ADVANCE Partnership Project, *AccessADVANCE,* working closely with you and your staff to implement the proposed evaluation plan.

The proposed project offers crucial support to other ADVANCE projects focused on the important work of increasing the participation of women in academic STEM careers. Content experts often lack the knowledge and skills to make their offerings welcoming and accessible to women with disabilities, unintentionally excluding this important segment of the population. This proposal seeks to support ADVANCE and other projects with a focus on women in STEM careers in becoming more welcoming and accessible to women with disabilities.

As always, the evaluation will follow the project logic model. The formative component will document implementation of project activities and assess progress toward the project goal and objectives, thus guiding project development toward the summative component which will assess the impact of *AccessADVANCE* by tracking first changes in accessibility of participating projects, programs, and STEM departments, and when the data are available, tracking changes in the number of participating women with disabilities.

Thank you for the opportunity to serve as external evaluator in this important project.

Sincerely,

Elizabeth Moore, Ph.D.

Exhibit 3

Wednesday, May 14, 2025 at 15:09:52 Pacific Daylight Time

Subject:	FW: Notice from National Science Foundation
Date:	Friday, May 2, 2025 at 10:01:07 AM Pacific Daylight Time
From:	OSP Award
To:	Brianna Blaser, Cecilia Aragon
CC:	Carol Rhodes, Amanda C Snyder, Susie Hawkey, Laura Roy, Brian Reed, Julianna Jones
Attachments:	image002.png, Notice from National Science Foundation.eml

Hello,

OSP received notice of termination of your award effective immediately. Unfortunately, NSF is characterizing this as a final agency decision and not subject to appeal. The University is considering a challenge to the termination based on governing law and regulations. As such, OSP is holding your early termination MOD in OSP.

While a challenge is considered, note that if it were denied, any costs after the termination NOA end date represents exposure for the PI/unit. Therefore, please pause spending.

If you wish to not challenge the termination, contact Carol Rhodes (carhodes@uw.edu)

Best,
Office of Sponsored Programs

University of Washington
Box 359472, 4333 Brooklyn Ave NE
Seattle, WA 98195-9472
Office Hrs: M-F 8:00 AM – 5:00 PM

From: NSF Grants <grants005@nsf.gov>
Sent: Friday, May 2, 2025 7:04 AM
To: Margaret Shepherd <mshep@uw.edu>
Cc: GCS FUND <gcsfund@uw.edu>
Subject: Notice from National Science Foundation

U.S. National Science Foundation Division of Grants and Agreements
2415 Eisenhower Avenue
Alexandria, Virginia 22314
(703) 292-8210

05/02/2025

Margaret Shepherd
Chief of Staff
University of Washington

mshep@uw.edu

Dear Margaret Shepherd:

The U.S. National Science Foundation (NSF) has undertaken a review of its award portfolio. Each award was carefully and individually reviewed, and the agency has determined that termination of certain awards is necessary because they are not in alignment with current NSF priorites.

Effective immediately, the following are terminated:

NSF Award Id
2017017
2347367

NSF is issuing this termination to protect the interests of the government pursuant to NSF Grant General Conditions (GC-1) term and condition entitled 'Termination and Enforcement,' on the basis that they no longer effectuate the program goals or agency priorities. This is the final agency decision and not subject to appeal.

Costs incurred as a result of this termination may be reimbursed, provided such costs would otherwise be allowable under the terms of the award and the governing cost principles. In accordance with your award terms and conditions, you have 30 days from the termination date to furnish an itemized accounting of allowable costs incurred prior to the termination date.

Sincerely,

Jamie H. French, Division Director
Office of Budget Finance and Award Management (BFA)
Division of Grants and Agreements (DGA)